

OPERATING INSTRUCTIONS and PARTS BOOK

FOR THE

MODEL FM MULTIPRESS



*Keep this book for reference*

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# OPERATING INSTRUCTIONS and PARTS BOOK

FOR THE

## MODEL FM MULTIPRESS

*Serial No. F 1000 Up*

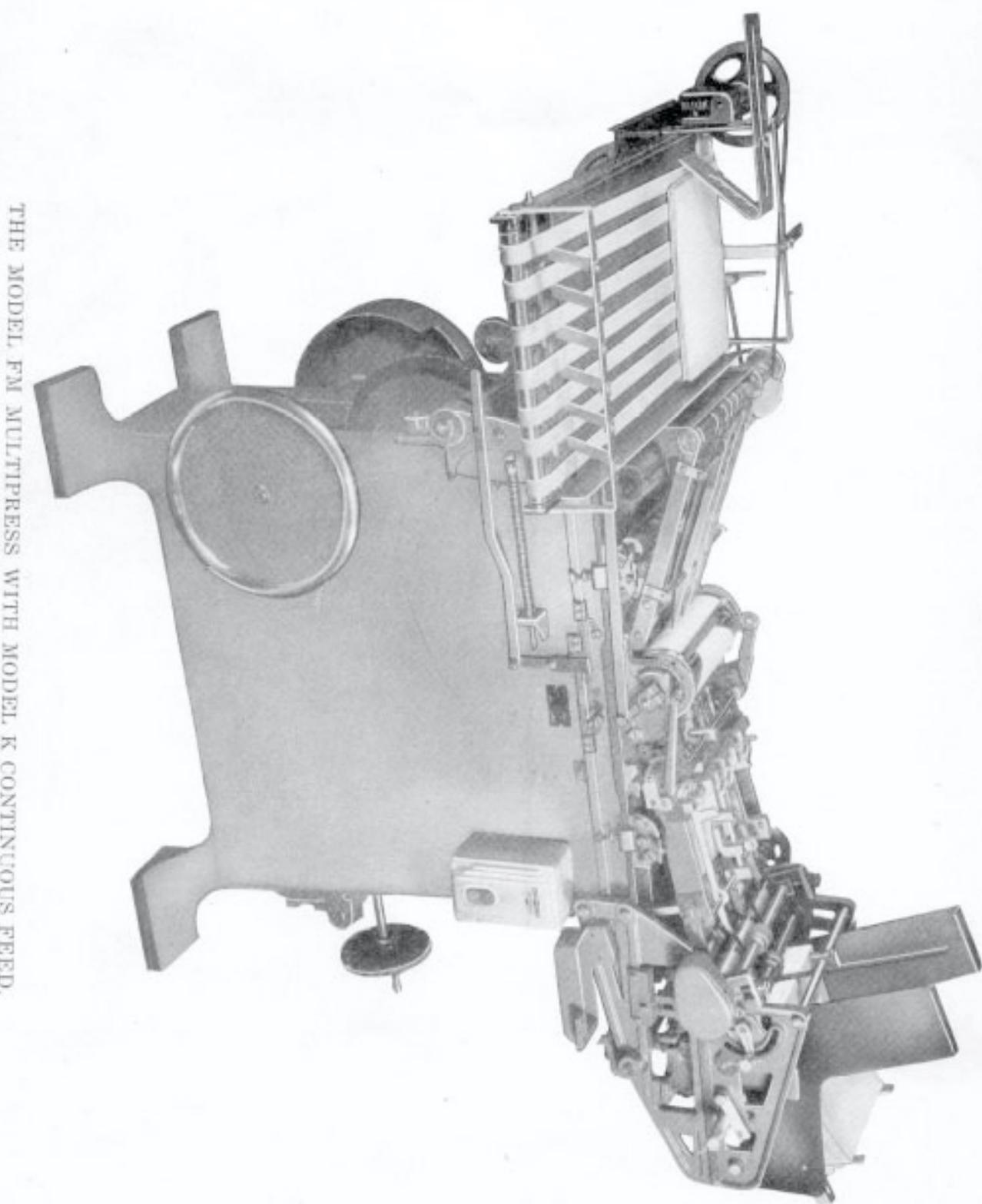
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Please give machine number when ordering parts.

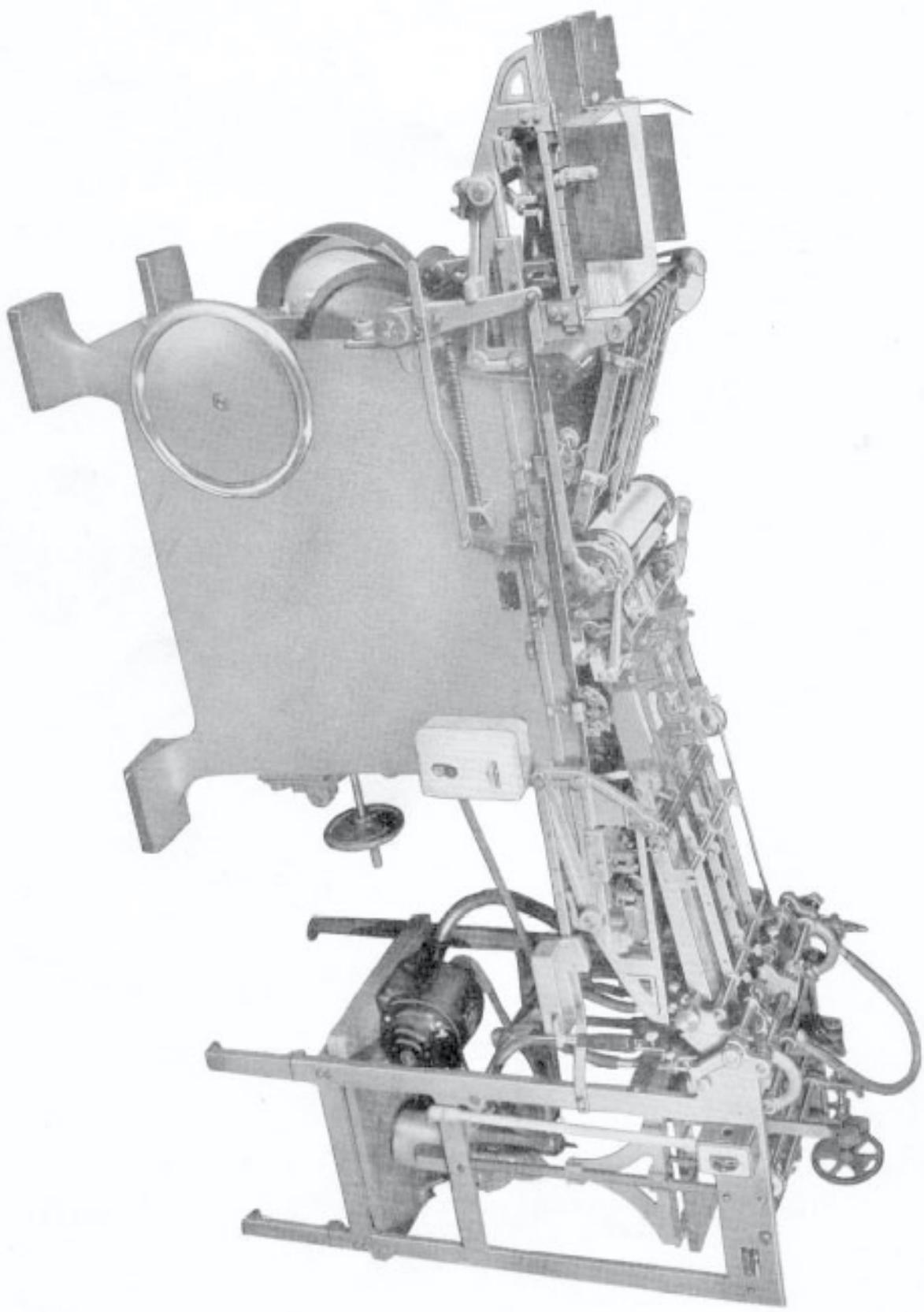
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• NEW YORK, N. Y.



THE MODEL FM MULTIPRESS WITH MODEL K CONTINUOUS FEED.



THE MODEL FM MULTIPRESS WITH SUCTION PILE FEED.

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## THE MODEL FM MULTIPRESS

### INSTRUCTIONS FOR INSTALLING

The press should be set on 2 x 6-inch skids if the floor is not in good condition, and on concrete or good wood floors omit the skids and set a piece of  $\frac{1}{2}$ " felt under each corner foot. Bolt the press to the floor with lag bolts in each corner foot.

If a Model K Continuous Friction Feed is used, this is fastened into position on the brackets at the rear of the machine. Connect the chain over the sprockets, attach the belt and the long feed driving rack and the feed will be ready to operate.

If a suction pile feeder is supplied, (used where sheet work is in the majority) it is set up at the rear of the press so that the feed conveyor board is resting on the rear press brackets. The feed is held in position by two bars which fasten to sides of feed and to the press.

The feed is driven by the long bar that connects the short lever on the lower part of the feed to the vertical lever that drives the bed on the press.

Instructions for operating the feed will be given later.

### INSTRUCTIONS FOR OPERATING PRESS

Oiling. Oil at oil holes, oil cups, tracks and all moving parts every day using a light machine oil equivalent to S.A.E. 20 in cold weather and S.A.E. 30 in warm weather. Oil cylinder shaft, feed rollers, and other fast moving parts twice a day. Oil H link under bed daily. Apply grease on gear teeth weekly. Oil motor every 2 to 4 months depending on the maker's instructions. Oil the air feed pump with a heavy oil weekly in the bearings and add about one teaspoonful in the pump chamber monthly.

4. Set register guides

5. Make ready

6. Set feeder

7. Set jogger

8. Arrange all sheet control devices

9. Operate machine by turning handwheel clockwise one full revolution to insure that all settings are correct and then inch machine by power for a few impressions.

If equipped with variable speed pulley regulate speed by turning handwheel which moves the motor base.

### PUTTING ON THE FORM

Set the form in the chase with the head at the end of the chase which has the  $3/16$ " square slot in the bottom. The form should be centered between sides of chase and spaced from front end according to margin required as per copy. Be sure to fill all blank spaces in the chase with furniture which will prevent the type or quoins jumping out should a quoin loosen.

To place the form in the machine, raise the register board, swing up the rear roller bracket, loosening the thumb nut and screw first, move the bed to the extreme rear and slide the chase in. See that the slot in the chase slides over the small locating pin at the front end of the bed. Loosen the quoins, tighten chase down in place, plane down form and tighten quoins.

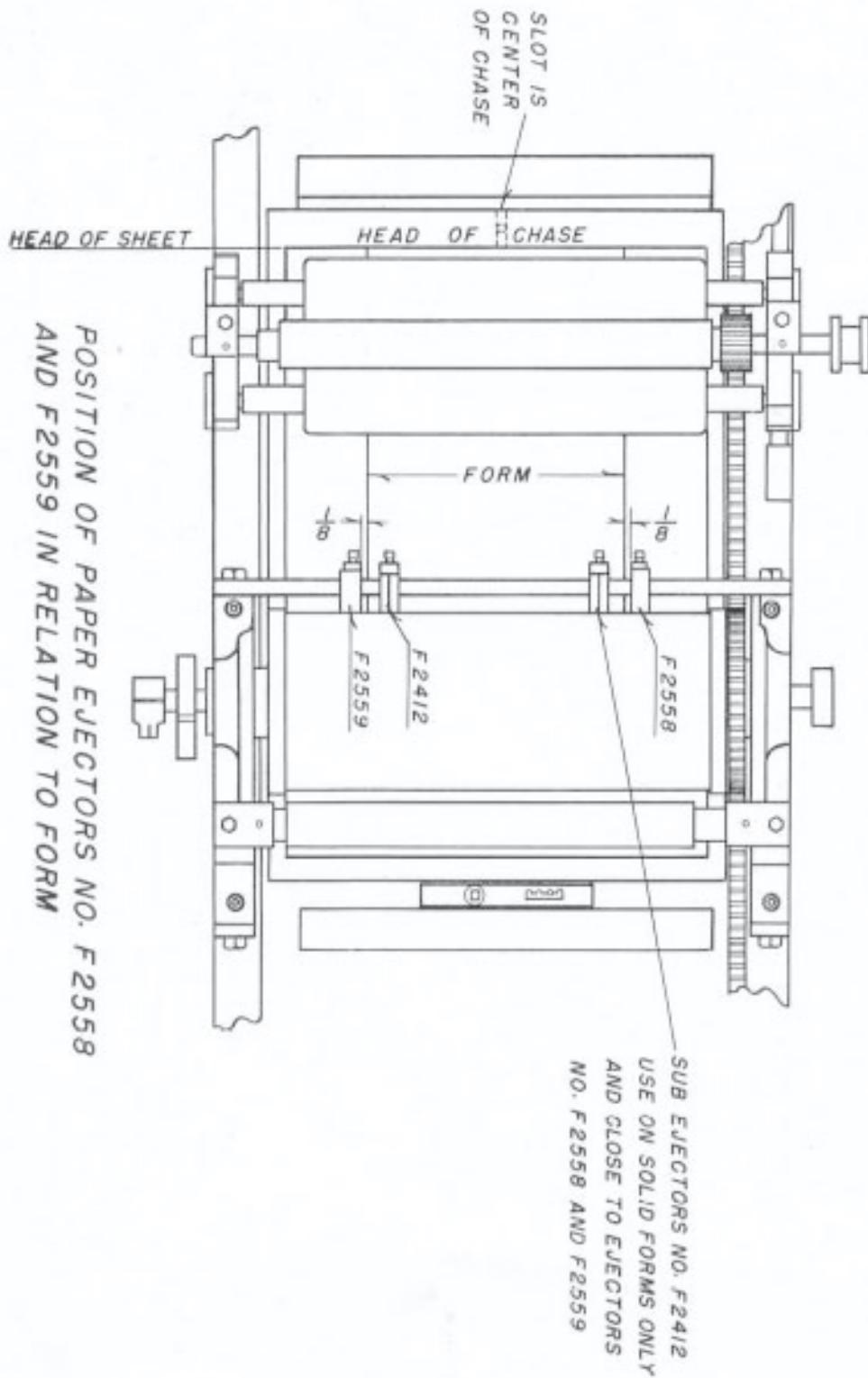
Before moving the bed, set the paper ejectors one on each side of the form. BE SURE TO DO THIS OR EJECTORS WILL DAMAGE TYPE as they do not clear type or leads. (use wood furniture on sides of form). These ejectors deliver the sheet and strip same from the form. The small roller touches the tympan when the cylinder is down on impression.

On machines equipped with grippers, set the small delivery rollers at any white space on the printed sheet. These small rollers should be set against the tympan when the cylinder is down on impression. This is done by loosening the screws that hold the bracket at each end to the cylinder boxes. The bracket can then be shifted so that rollers are in proper position lightly against the cylinder packing. Be sure the conveyor sticks clear the grippers.

### STANDARD PRESS OPERATING PROCEDURE IS

#### RECOMMENDED IN FOLLOWING ORDER:

1. Ink press
2. Put on form
3. Set paper ejectors or delivery rolls. Be sure ejectors clear sides of type and chase bearers.



POSITION OF PAPER EJECTORS NO. F2558  
AND F2559 IN RELATION TO FORM

To trip the cylinder to impression position, either feed a sheet down the register board under the sheet detector or hold by hand using the handwheel when doing this the first time. The sheet detector is part No. F2402 shown on parts diagram Page 84.

A word here explaining the difference in a gripper equipped machine and one with ejectors only:

The ejector type is designed for simplicity of operation and will deliver stock that is delayed in reaching the front feed rolls due to a turned corner or other reason. When using these, there must be at least  $\frac{1}{4}$  inch margin on each side of the sheet, that is, the form must be  $\frac{1}{2}$  inch smaller than the width of the sheet. They will not clear the form (type, cuts, rules or slugs).

The grippers are used where work predominates that must bleed off the sides of the sheet. The delivery rolls that are used with the grippers clear the form, but should be placed evenly at any blank space on the printed sheet. When using grippers, all parts and adjustments (guides, feed, etc.) must be correct or the sheet may be delayed and miss the grippers.

To continue with the operation of the machine, you now have the form on and the ejectors (or delivery rolls) in position. Turn the machine over by means of the handwheel to be sure that the ejectors clear the form and no obstruction is on the bed. Next lower the ink roll brackets in place with bed at front. Be sure the vibrator arm casting and the gears mesh properly with the rack, then TIGHTEN THE CLAMP THUMB SCREW securely and TIGHTEN THE LOCK NUT.

We are assuming the rollers are set. Instructions on setting these will be given later.

## SETTING THE REGISTER GUIDES

Lower the register board into position (be sure part No. F2424 on the end of the moving guide shaft sets outside the forked shaped casting No. 2239) and move the bed to the extreme rear (feeder end). In this position the side guides may be set as they are in closed position for sheet register. Fold a sheet through the center, unfold and slide it under the top sheet guides on the register board with the crease lined up with the center of the middle tape which is the approximate center of the machine. Now adjust the moving guide to the sheet and then the stationary guide is set lightly to the opposite edge of the sheet.

Remove the sheet and set the jogger (with the bed at extreme rear) or envelope extension delivery. On the jogger, the edge of the long board No. C1526, Page 38, is the center.

It is advisable to operate the machine by turning the handwheel by hand for a few turns if unfamiliar with it to be sure everything is set and locked properly. Then run by power and move the two outer registered board tapes, No. F2569 Page 34, in position one over the edge of the right guide and the other close to the stationary spring guide. Now set the top sheet guides, spacing same equally on sheet near the corners. Then space out the delivery conveyor tapes and the wood guide sticks to accommodate the sheet and clear grippers.

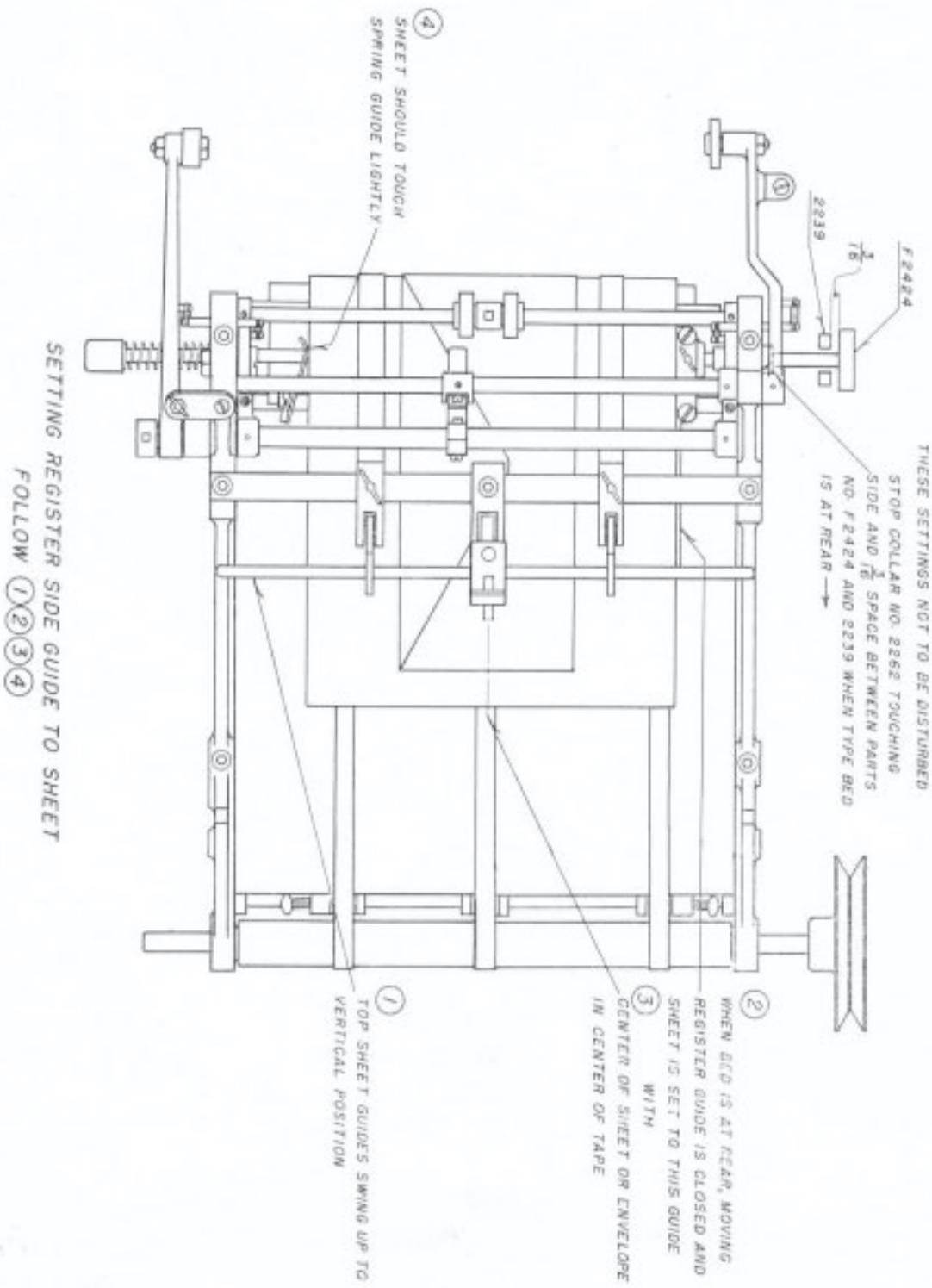
Next, swing up the top sheet guides and slide a sheet partly down the register board, holding on to the tail end; run the machine and let sheet go when the moving guide is open. As an alternative to above, the sheet may be fed by the automatic feed. Instructions for operating same will be given later.

If the position of the printing is correct on the sheet, you are now set to run with the exception of the cylinder makeready. If position at head is incorrect, shift form in chase. If incorrect at sides, reset side guides on register board when bed is at extreme rear only. See diagram on page 4.

## CYLINDER TYMPAN MAKEREADY

Trip cylinder to get impression on the packing, then operate machine stopping with the gap in cylinder up when bed is moving to rear. Loosen the tympan reel lock screw in lock No. F2586, Page 33. Unreel by inserting pin No. 2662 in one of the four holes in the tympan reel and turning to the right. Hold ends of tympan paper and turn the hand wheel by hand clockwise until the paper is almost fully unwound from the cylinder in which position any makeready sheet can be pasted in. Rewind by turning handwheel clockwise.

When replacing the tympan have the cylinder gap up. Unreel. If gripper equipped, slide the gripper bar out of the notch in the gripper crank and swing up. This will expose the two screws that lock the front tympan clamp No. F2584. Loosen these screws and remove old tympan from clamp but leave it under the cylinder to help slide new tympan in. Stand new tympan sheets into clamp, tighten clamp screws, fold tympan and slide under cylinder between old tympan and cylinder. REPLACE THE GRIPPER BAR INTO THE NOTCH IN THE GRIPPER CRANK. Insert the other end of the tympan sheet



into slot of the reel and turn reel to left until packing is snug; then tighten the screw in the tympan reel lock. Do not tighten reel too tight as it will bind the gripper bar.

The cylinder should be packed with enough sheets to bring the top draw sheet even with the cylinder bearers less the thickness of the stock to be run.

This company can furnish regulation tympan draw sheets cut to size; also rubber cylinder blankets of .022 and .042 inch thickness for cylinders that have been machined down to accommodate same plus a draw sheet and two hangers.

### SETTING THE FORM ROLLERS

Synthetic rubber form rollers are usually supplied and once set it is seldom necessary to reset. If glycerine and glue rollers are used it will be necessary to trim the ends so that the composition does not ink up the chase bearers, gears, etc.

To set the rollers proceed as follows: Move bed until ink plate is under the form rollers, remove vibrators, loosen the screws that hold the form roll bearing blocks No. F2167-8 onto the side of the bracket No. F2164 & F2166. Set the bearing block by pressing the form roll lightly against the ink plate and tighten the hexagon head screws locking the bearing blocks. Now put vibrator in position and lock vibrator clips No. F2291 in place.

With this setting the rollers should make a streak  $\frac{1}{4}$  inch wide when set down on the plate.

The proper size to recover these rollers is  $1\frac{1}{2}$ -inch diameter  $\times 8\frac{7}{8}$ -inch long,  $1\frac{1}{8}$ -inch from one shoulder on stock and  $1\frac{1}{2}$ -inch from the other.

Synthetic rubber form rollers of correct size can be supplied by this company.

### SETTING THE ANGLE ROLLERS

These are not needed except on heavy forms.

Set these while on the ink plate by turning the sockets which raise or lower the roll until there is  $1/32$  inch space between the roller stock and the bearing socket. To turn the socket remove the angle roll and vibrator; also loosen the screw that locks the socket in the casting.

The correct size to cover these is  $1\frac{3}{4}$  inch diameter  $\times 8\frac{7}{8}$  inch,  $1\frac{1}{8}$  from each shoulder on the stock. The ductor roll has the same dimensions.

### SETTING THE DUCTOR ROLL

This is set originally at the factory and changes in the diameter of the ductor roll can be compensated for by moving the fountain forward or back.

If the original setting has been disturbed, proceed as follows: Loosen screws holding fountain and move away from ductor roll. Next move the bed so that the cam roll No. F2276 is just starting on to the bevel under the ink plate and set the stop screw in the casting No. 2186 against the large bracket No. F2191. Now move the fountain up until the metal fountain roll touches the ductor roll and tighten the screws that hold the fountain bracket in position.

Follow the same procedure for the rear fountain, bringing the bed to the rear. Casting No. 2186 and bracket No. F2191 are shown on page 28.

On machines that are equipped with the fountain ductor trip, this can be adjusted at the same time as follows: Move the bed to extreme front and set the lock block No. 2390, Page No. 28,  $1/16$ -inch away from the end of the dog No. 2432. Move the bed to extreme rear and repeat on part No. 2385. Run the machine and with lever No. F2430 hooked over the stud on the left end and using the left hand notch, the ductor roll should trip and touch the fountain roll only when a sheet is run. If it trips all the time, loosen screws and move part No. 2427 to the right. If the ductor roll does not trip at all when sheet is run, move part No. 2427 to the left.

When lever No. F2430 is set on the stud using the right notch, the ductor roll will touch the fountain roll at each stroke of the machine regardless of whether stock is run through or not.

### FOUNTAINS

The flow of ink is controlled from the fountain by the series of thumb screws in back and by adjusting the link on the fountain pawl lever to take a longer or shorter stroke. Using the stud in the lower hole gives a shorter stroke. To get at rear fountain on machines equipped with continuous feed, remove the dust pan which slides out and raise the feed which can be held in this raised position by the bracket No. 193. DO NOT

RUN MACHINE WITH FEED UP. To clean fountains thoroughly remove the blade by removing the five flat head screws.

On most work it is only necessary to use the front fountain as the front rollers cover  $4\frac{1}{2}$  inches. When printing a larger form, the rear rollers must also be used. With this system it is possible to print two colors at one impression. The roller brackets are adjustable back and forth to separate the colors. Of course, the colors must be divided, that is, they cannot intermix. To move the roller brackets, it is necessary to remove the guard tubes No. F9-F10-F11.

### SETTING THE MODEL K CONTINUOUS FEEDER

To set the feeder, move both stock guides to the extreme side position and lay the sheet on the large feeding rollers with the center crease in the center of the upright front stock guide. Then move the side stock guides to within  $\frac{1}{16}$ -inch of the sheet. Next set the rubber caliper roll by means of the outside lever No. 10A, moving down to open, and up to close. It should be set so that the sheet can be pulled back with just a slight drag. If double feeding occurs, close slightly. If sheet wrinkles or does not feed properly, open slightly.

This caliper rubber, when worn in one spot, should be moved around a little to a different position. There are three screw holes in the hub to facilitate shifting. The caliper rubber should be frequently replaced and directions for same will be given later.

Next, set the driving lever No. 69 (this is attached to the long driving rack with the shoulder screw No. 91) in the proper hole which depends on the length of the sheet to be run, e.g., in No. 4 for a 4-inch sheet, in No. 8 for 8-inch sheet or larger.

The rear feeding rolls are usually set close together in the center of the feed which makes it convenient to run the narrowest and widest stock. On stock wider than the span of the rollers use the auxiliary lower stock supports No. 142 and 143 to prevent corners of the stock catching on the lower part of the side stock guides or move the two outer rollers nearer to the side stock guides. These rollers are held in place by a flat point set screw.

Now lay one sheet in the feeder first (always do this when feeder is empty instead of dropping in the whole pile) and add the rest of the sheets to be run. Do not pile in more than 500 of 16-lb.  $8\frac{1}{2} \times 11$  inch sheets or its equivalent as the weight will prevent proper feeding. Envelopes can usually be piled to the top of stock guides.

Next, adjust the two rear stock guides No. 46-A to the back of the pile. These should be moved in or out to the best feeding position. Release the clutch latch No. 149 and run the press so that the clutch engages and the sheet feeds out to the pullout rollers.

These rollers are adjustable for more or less pressure by means of the two knurled nuts over the bearings at each end. Use only enough pressure to draw out the sheet. One roller may be used on ordinary envelopes and narrow sheets. Turn knurled nuts to right to loosen tension on sheet.

#### Suggestions for adjusting the Model K Feeder:

Ordinary envelopes should be run with the flap up and to the left side of the feeder. Open end envelopes run best with the flap at front, if open run flap at rear. When running paper, do not pile more sheets in than the equivalent in weight to 500 sheets of 16-lb bond paper. Should feeder take doubles, it is probably due to one or more of the following reasons:— Caliper open too far, front lower feeding roller not running true, or stroke on lever No. 69 too long.

Feeder does not feed regularly:—Stock guides No. 39-A and No. 40-A too close to stock, caliper incorrectly set, stroke on lever No. 69 too short, feeder rollers badly worn or glazed from lack of use, (a little glycerine or water applied to the surface will help this) springs No. 50 on the driving ratchet may be broken.

Stock bends down on corners before passing caliper roll:—Front feeding roll eccentric — replace. Attach the auxiliary lower guides No. 143 which hook on parts No. 43-44 and parts No. 39-A and 40-A. Be sure this piece is not resting on a feeding roller.

Stock curl's up and strikes upper guides on register board:—Caliper set too tight. Reset and also attach top sheet auxiliary guides No. 140 which hook on the caliper shaft No. 151.

Stock wrinkles when pulled out of feeder by pullout rollers:—Caliper set too tight, front feed roller eccentric, too much stock in feeder, pullout rollers too tight (reset these with nuts No. 129). Feeding stroke too short. Tension on leather brake belt too strong.

Clasp envelopes and tags will feed better if two caliper rolls are used each spaced about  $\frac{1}{4}$ " away from the side of the lower front feeding roll instead of one over the center of the feeding roll. This is also a help when feeding glassine envelopes, coated stock and some cartons.

## CHANGING THE ROLLERS ON THE FEEDER

Refer to the feeder diagram Page 8 and 9.

To change the rear feeding rollers remove screw No. 91 on lower end of driving rack No. 145, remove nut No. 117 on end of clutch shaft No. 148. Pull out clutch handle on other end so that the clutch plate No. 31 can be removed. Take off leather brake around the small pulley No. 15 on the rear feed roll shaft, loosen the screw No. C-6197 in this pulley and the screws No. C-6185 in the feeding roller, and the shaft can be withdrawn with the entire clutch assembly attached.

When replacing the rollers be sure that they are fitted with flat point set screws which will not burr the shaft. Also see that the brake spring is on the lower side, not the upper.

To change the front feeding roller: First remove the rear rollers and shaft as above, then loosen the screw No. C-6197 in the collar No. 16; loosen the flat pointed set screw in the hub of the feeding roller and the shaft may be withdrawn from the right (driving) side of the feeder. NOTE: When replacing this roller, be sure to use one supplied by the manufacturer of the machine as it is essential that it run perfectly true. These rollers are lathe ground to insure concentricity and are supplied in a rubber of the correct quality for the purpose.

The rear rubber rings may be put on separately or recovered at the factory.

To change the caliper roll No. 152:—Remove the screw No. 160 in the adjusting lever No. 10A and slide out the Shaft No. 151 and lever assembled after loosening the flat pointed set screw in the caliper roll.

To remove pullout rolls No. 153, take out screws No. C-6105 and remove guard No. 113. Lift out bearings No. 58 with the adjusting screw and nut assembled. These rollers must also be supplied by the manufacturer to be correctly ground, correct size and true.

All the above rollers, when worn, should be returned to the factory and rebuilt ones will be promptly supplied at an ex-change price.

Dust pan under feeding rollers can be removed for cleaning.

## SETTING THE MODEL B SUCTION PILE FEED

This feeder is placed back of the motor end of the press and

fastened with two bars that attach to the sides of the feed and to the back of the press. Four extension legs are furnished to raise feed to the proper height. The main cam that operates this feed is driven by levers which are in turn operated by a long bar which fastens to the press vertical lever that moves the bed. The other end of the long bar is connected to the center short lever on the feed.

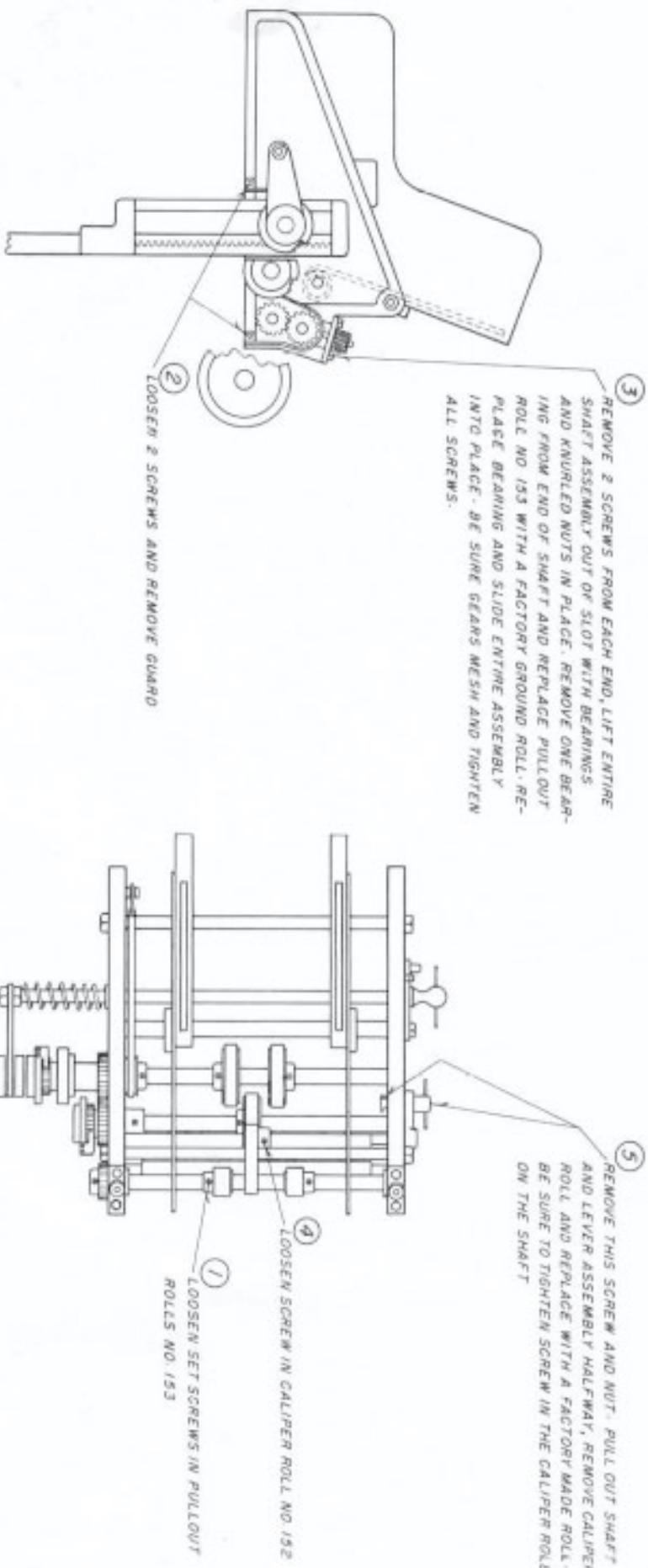
When properly connected the bottom of the slot in the main cam will almost touch the cam roll when the bed of the press is in the front (jogger end) and the open end of the slot should be even with the top of the cam roll when the bed is at the extreme rear.

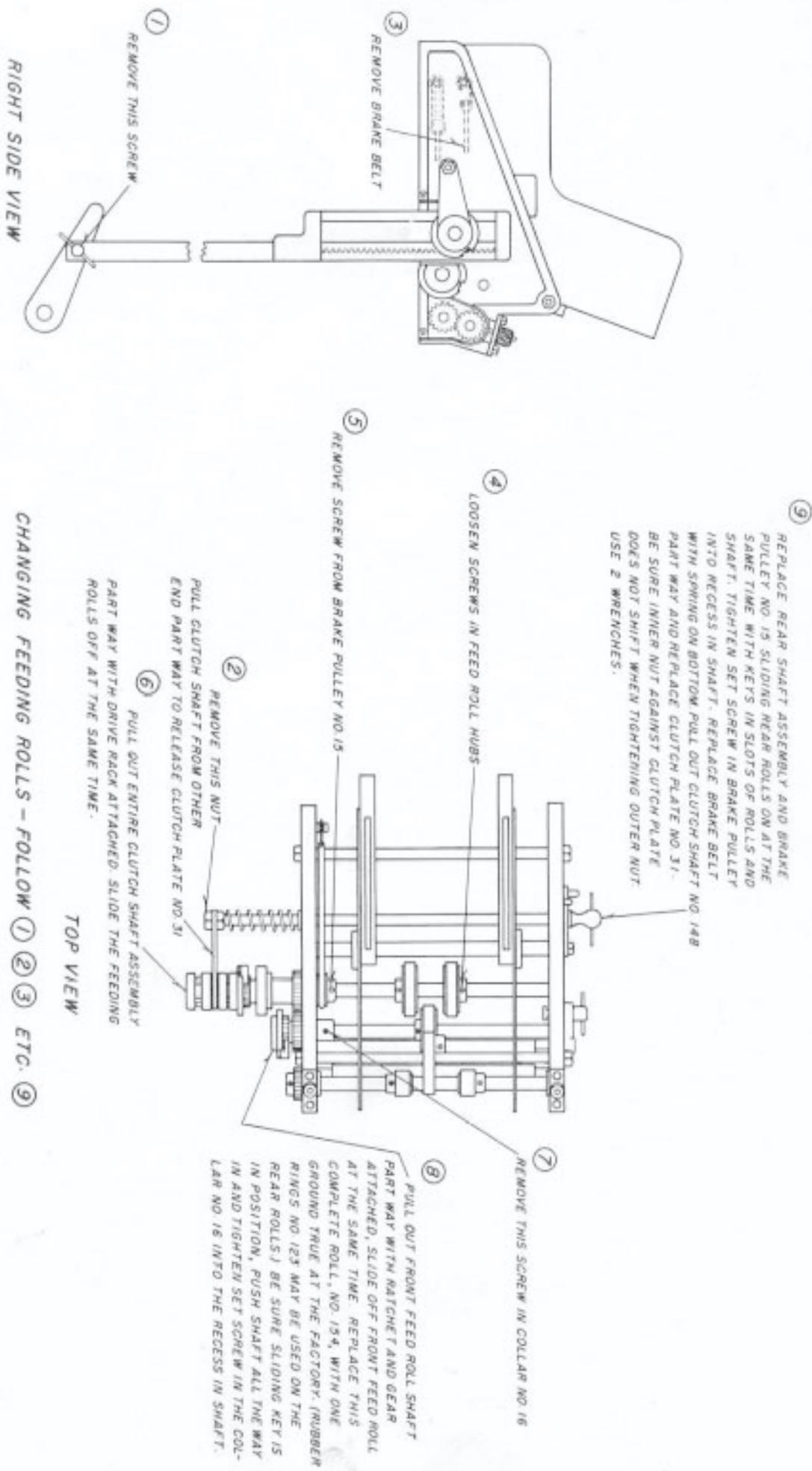
The feed conveyor board is driven by a round belt from the inside groove of the double pulley on the press register board. Be sure that the three tape separator spools under the conveyor board do not rub against the steel roll as it will slow down the sheet.

To set the feed, fold the sheet to be run in the center, unfold and place on the elevator table with the crease in the center of the front shoe which is originally set in the center of the feed. Now move the front corner guides (with blowers attached) to the sheet and set the two side stock guides and the rear guides allowing about  $\frac{1}{8}$ -inch between stock and guides. Next raise the elevator table by means of the handwheel until the sheet (or table) is level with the angle on the upper end of the front corner guides. With the table in this position, set the elevator control finger No. 5086 so that the finger No. 5120 is about  $\frac{1}{8}$ -inch in under the flat part of the pawl casting that raises the table. With this setting the stock will raise to the proper height as sheets are fed from the pile. If not set correctly, the table and stock will raise too high and the suction nozzle will strike hard on the table or stock and force the main cam out of position. If this should happen reset cam as per previous instructions by loosening the set screws on the lower lever No. 5080, and retighten.

After guides are set, lower the table and load same until the stock is just below the pile control finger. Now put the two dogs on the ratchet so that the table will rise as the machine operates.

Next start the feed motor and set the blowers to get an even separation. The blower tubes can be moved up and down and turned by loosening the thumb screw. The volume of air is controlled by adjusting the round flat valve on the pump blower head.





The vacuum in the suction nozzle is adjusted by turning the valve No. 5037 on the top far side of feed near the sheet starting handle.

This valve operates differently than the blower valve; it covers a small hole near the starting handle and if a large hole in the valve lines up with the hole underneath, more air will escape and there will be less in the suction nozzle. If a small hole is used or the valve covers the lower hole entirely, there will be more suction. Never use more suction than necessary or double sheets may be picked up. Don't use too much blow from separator tubes as it may blow back the corner of the paper.

The paper safety caliper is directly alongside the suction nozzle and its lower end almost rests on the front safety shoe. This is adjustable by means of the two thumb screws on top to allow only one sheet to pass through.

\* Start the feed motor, turn on the sheet starting lever and inch the press to see that the sheet is fed down to the guides properly. If all settings were made as instructed, the sheet should feed down properly. In some cases, as with curled stock, it may be necessary to change the height of the table by adjusting the pile control finger as more or less blow may be required.

With the exception of ordinary adjustments, no serious trouble will be experienced until the main cam and the various levers and rolls connected with it are badly worn in which case all these parts would have to be replaced, preferably at our factory.

The hose should be cleaned occasionally and replaced when worn.

The pump tank should be emptied and fresh cotton waste or cheese cloth inserted about once a year. Too much or too light an oil in the pump will spray on to the paper.

In addition to wear in the cam, etc., a worn pump will cause a lack of power in the suction nozzle.

For best feeding results set the pile control finger to keep the elevator and pile as low as possible and still have the suction nozzle pick up the sheet.

## HINTS TO OPERATORS

Bear in mind that your press has been delivered and installed in mechanically correct condition. Tampering with timing and factory adjustment of various parts will more likely require

a call for a factory adjuster than aid the operator to correct a difficulty in operation that may have nothing to do with adjustment tampered with.

**Register:** Variation in register is usually caused by one or more of the following: Register side guides too tight to the sheet, binding same. Feed roll No. F2542-A dirty with paper lint, etc. Improper adjustment of push rolls No. F2564, Page 14 and Page 34. These are adjusted by the thumb screw No. 2990 as instructed on Page 14. There are two screws in the end bearings No. F2257 and F2460 Page 34, which are set at the factory so that the push rolls have fairly even pressure and usually do not require resetting unless disturbed. Ejector bands binding against cylinder—see page 14. Loose belts driving the register and feed boards, loose register board tapes No. F2569, weak feed roll springs, worn feed rollers and bearings, and worn main rack and intermediate gear to feed rolls.

**Sheets not ejecting from cylinder section:** On ejector equipped machines, the ejector band may be bent or the ejector bar No. F2565 bent so that the band binds against the cylinder. Small rolls on ejector not touching cylinder packing: These should touch lightly when cylinder is tripped and oiled occasionally with a drop of light oil, see Page 14. Should it be necessary to replace ejectors, this can best be done by removing bar No. F2555 and place ejectors on same before putting into position.

Tacky ink and a large form with little margin for ejectors will allow the paper to stick to the form; sab ejectors No. F2412 will help, also reduce the ink with linseed oil or commercial ink reducer.

If sheets stick on delivery conveyor tapes, use shove roll No. C6157, Page 35. If due entirely to static electricity, use tinsel stretched across the conveyor and an electric heater (obtainable from this company) arranged above the jogger. If the cylinder trip is out of adjustment, the sheets will not eject properly. More about this later.

**Sheets not ejecting on gripper equipped machines:** Register guides too tight to the sheet, binding same. Feed roll No. F2542-A dirty with paper lint, etc. Improper adjustment of push rolls, see instructions on Page 14, for adjusting these. Loose belts driving register and feed boards. Loose register board tapes No. F2569. Weak feed roll springs. If the cylinder trip is out of order, the sheets will not be picked up and delivered by the grippers. It is advisable to check this before replacing parts or making other adjustments. Part No. F2664, Page 33, worn or

bent, tympan reel No. F2585 worn, gripper bar No. F2615 bent, spring No. F23 broken, cam roll No. 2614 worn, cams No. F2653-F2654 worn, worn cylinder drive pin No. 2177, worn cylinder gear, feed rolls, loose gears on feed rolls, bearings and main rack worn, worn main gear No. C1918, pinion No. F1014, main shaft No. F1974, pins in vertical drive lever No. F1036, worn H link No. F1039, Page 32, shaft No. F2323-B, Page 33, not set correctly. To set this, trip the cylinder, remove the upper feed roll and set the bar so that the end is  $3/32$ -inch away from the cylinder packing when cylinder is down. This shaft is fastened on one end with a hexagon nut.

## SETTING THE CYLINDER 'TRIP'

See diagram on Page 15. First make sure the taper pins holding the cylinder operating levers No. F2183-F2185 to shaft No. F2281, Page 17, are not bent. Lever No. F2185 should just touch the casting marked "stop" when the cam roll No. F2181 on the lower lever is touching the low side of the cam No. F2180, with a maximum space of  $1/8$ " between cam and cam roll. If not, the taper pins should be replaced and levers reset. If unable to do this, send the assembly to the factory for repairs. See diagram on Page No. 17.

The main cam No. F2180 is set at the factory to a position that just starts to turn the cylinder shaft when the cam roll No. 2251 is down in the flat on the cam No. F2282 (which is attached to the cylinder gear) just before the latch No. 2527 starts to move up. This main cam No. F2180 is securely attached and only wear after many years of use would affect the cylinder trip.

Turn the handwheel until cam roll No. 2251, Page 15, which rides on the cam alongside of the cylinder gear, is on the high side (not down on the flat) and in this position set the sheet detector body No. F2398-1 as shown on Page 15, with the edge of part No. F2399 as close as possible to No. F2406 allowing the thickness of a 16-lb. sheet of paper between so that the sheet detector (distinguisher) No. F2402 will be able to drop down when no sheet is under.

Next, place a sheet of paper under the sheet detector No. F2402 and adjust the thin screw so that the paper has raised the detector to the position as shown on the diagram, Page 15. Do not turn this screw too far down or the detector will buckle and delay the sheet. This setting need not be disturbed for ordinary stock, sheets, envelopes, etc. On bulky stock it may be necessary to raise the screw slightly.

Now operate the machine by hand so that the cam roll No. 2251, Page 15, has just dropped down onto the flat of the cam next to the cylinder gear and adjust the screw in the casting No. F2249-1, Page 15, so that it presses the latch No. 2527 to within the thickness of a sheet of paper from the bottom of the notch in the collar No. 2337 on the end of the cylinder shaft. The space between the end of the latch and the collar should be  $1/32$ -inch when the cylinder is up and the latch is free to move up if lever No. F2249-1 is raised. Setting of the cylinder shaft will be given later.

The trip should operate correctly if all adjustments are made as instructed, but in some cases it may be necessary to raise or lower the screw in casting No. F2249-1 slightly up if cylinder does not trip with a sheet feeding through, down if it trips without sheet passing through. The foregoing applies only if all other settings are correct, i.e., sheet detector, etc.

Parts that may wear and cause trip troubles are angles No. F2399-F2406 on sheet detector, latch No. 2527, springs No. 2544, Page 33, collar on the cylinder shaft (this is usually supplied by the factory assembled with the shaft to insure proper position). General wear in the main driving mechanism (main gear, pinion, shafts, etc.) will throw the trip mechanism out of adjustment.

## TO REMOVE AND REPLACE CYLINDER

Refer to Parts Diagrams, Page 33.

First turn the flywheel by hand clockwise until the oil hole in the cylinder (gear side) is up.

Remove screw No. 2340, Page 28, drive out taper pin in collar No. 2337 on opposite end of cylinder shaft, (be sure to strike small end of pin) and remove this collar. Also remove the long oil cup on the shaft.

Remove the screw that holds the bushing No. 2316 (operator's side of cylinder shaft) and pull out shaft with casting No. 2225 attached. If machine is equipped with grippers remove part No. 2225 and remove F2280, before removing bushing No. 2316 and remove upper gripper cam No. 2654 which is between the cylinder and the cylinder box. Swing cylinder up and remove Pin No. 2177 will come out also.

When replacing see that the time mark on the gear corresponds to the mark on the rack. This arrow mark is on the gear tooth opposite the rectangular slot in the gear and on the rack tooth space that is in line approximately with the chase

centering pin. If not, remove bushing No. 2315 and set gear in proper position, then replace bushing. See Diagram on Page 14.

Place pin No. 2177 into proper hole in cylinder and see that same enters the rectangular slot in the gear when inserting the cylinder. Swing cylinder into place and insert the cylinder shaft. Replace screw that holds the bushing No. 2316 and the collar on the opposite end held by the taper pin. Replace screw No. 2340.

If the casting No. 2225 has been loosened on the shaft, turn the flywheel until the arm No. F2185 is in "off impression" position. See that the notch in the collar No. 2337 is about  $1/32$ " away from the latch No. 2527 before tightening casting No. 2225 on the shaft, see Diagram on Page 16.

When the cylinder is tripped, the arm No. F2185 will be against the "stop" casting and the cylinder riding lightly on the chase bearers. In this position the cylinder must be concentric with the cylinder gear or the printing will be slurred. If not concentric it is due to an incorrectly fitted collar No. 2337 on the end of the cylinder shaft or the pins that hold levers No. F2185-F2183 onto shaft No. F2281 are bent (See previous instructions under heading "Setting The Cylinder Trip" Page No. 11, and diagram on Page No. 15).

#### CHANGING THE TAPES NO. C1565 ON THE DELIVERY CONVEYOR

The upper tape roll is hollow and the shaft that goes through is held in place by set screws. Pull out the shaft and remove one side No. F2259 of the conveyor. When replacing tapes, leave one old one as a guide until the new ones are on, then cut same off. While you have the conveyor apart, it is advisable to put a little light grease in the two lower conveyor roll bearings.

#### CHANGING THE TAPES NO. F2569 ON THE REGISTER BOARD

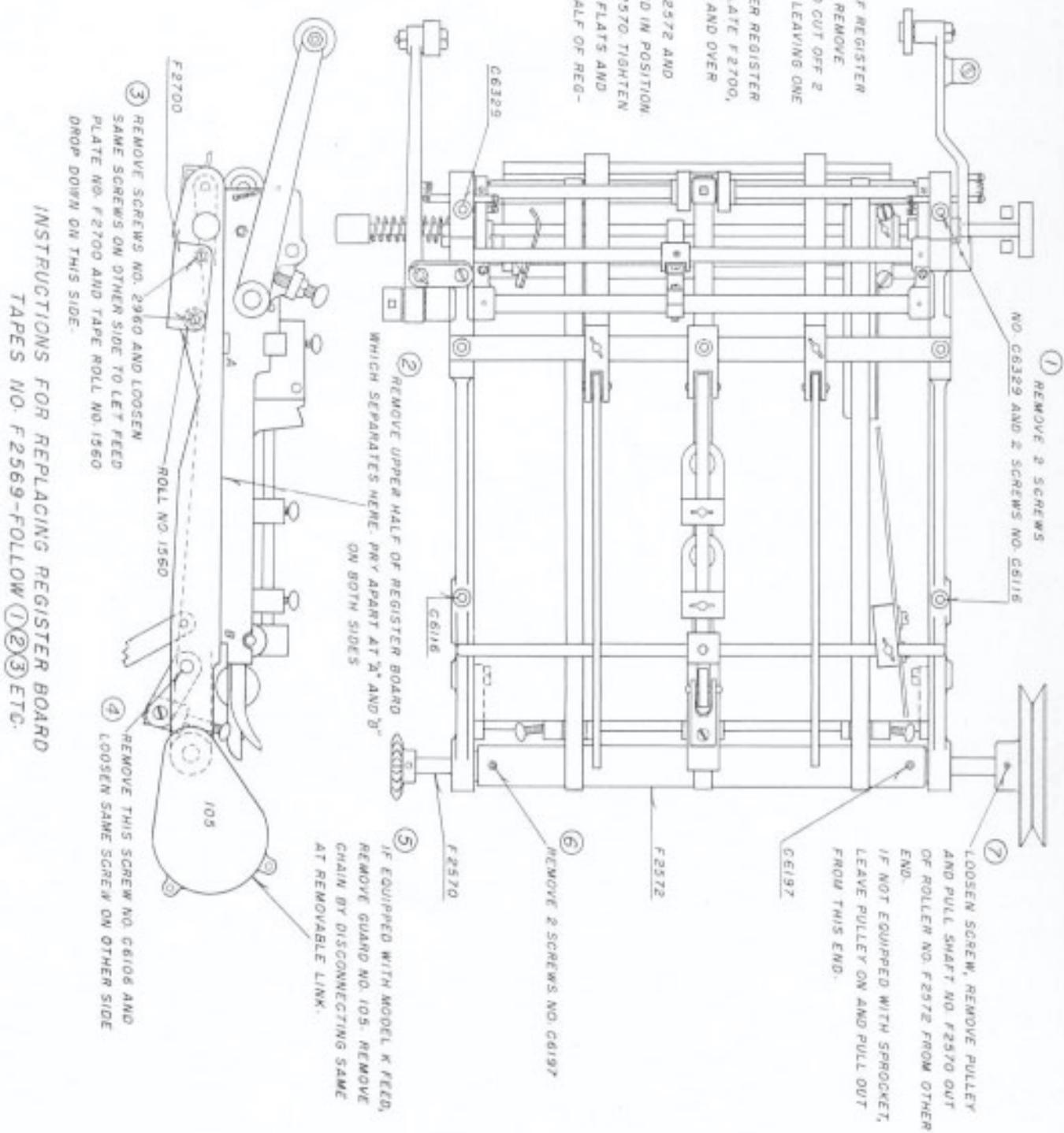
Follow diagram on Page No. 13.

When replacing register board tapes, be sure to use only endless tapes which can be obtained from this company and see that the feed plate No. F2760 does not rub on the lower feed roll.

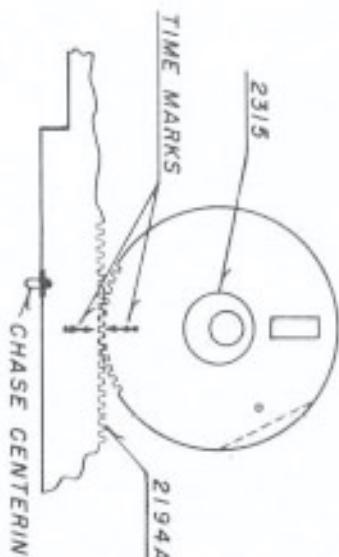
#### MACHINE SLOWS DOWN

This may be due to loose belts, LACK OF OIL, motor out of order or overloaded power line.

This company will be glad to answer any questions regarding repairs or operation of the machine. If writing, give machine number and number of any parts that are involved.



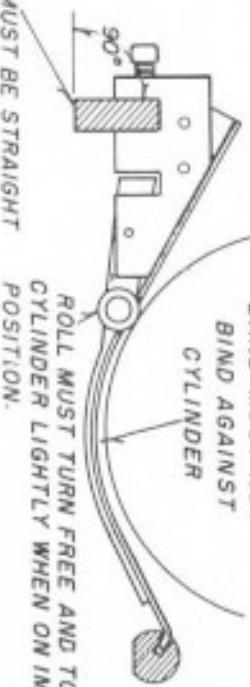
INSTRUCTIONS FOR REPLACING REGISTER BOARD  
TAPE NO. F2569-FOLLOW ①②③ ETC.



### POSITION OF CYLINDER GEAR WITH RACK

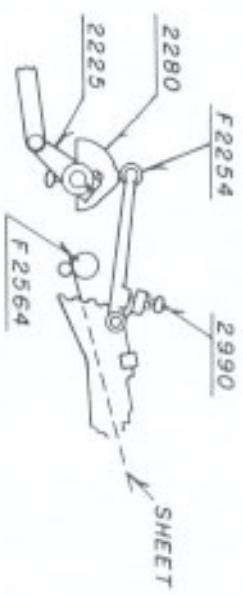
CYLINDER

BAND MUST NOT  
BIND AGAINST  
CYLINDER



BAR MUST BE STRAIGHT  
ALONG ITS FULL LENGTH  
AND SQUARE WITH TYPE  
BED. (90°)

### POSITION OF EJECTOR

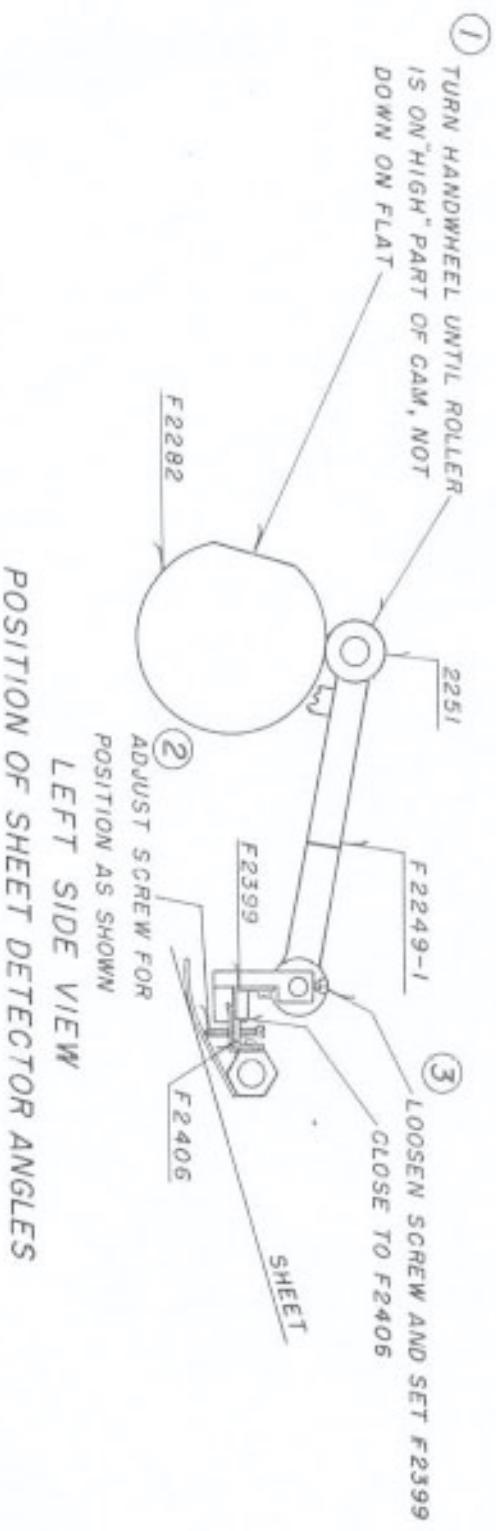


FEED SHEET UNDER SHEET DETECTOR,  
STOP WHEN BED IS AT EXTREME REAR,

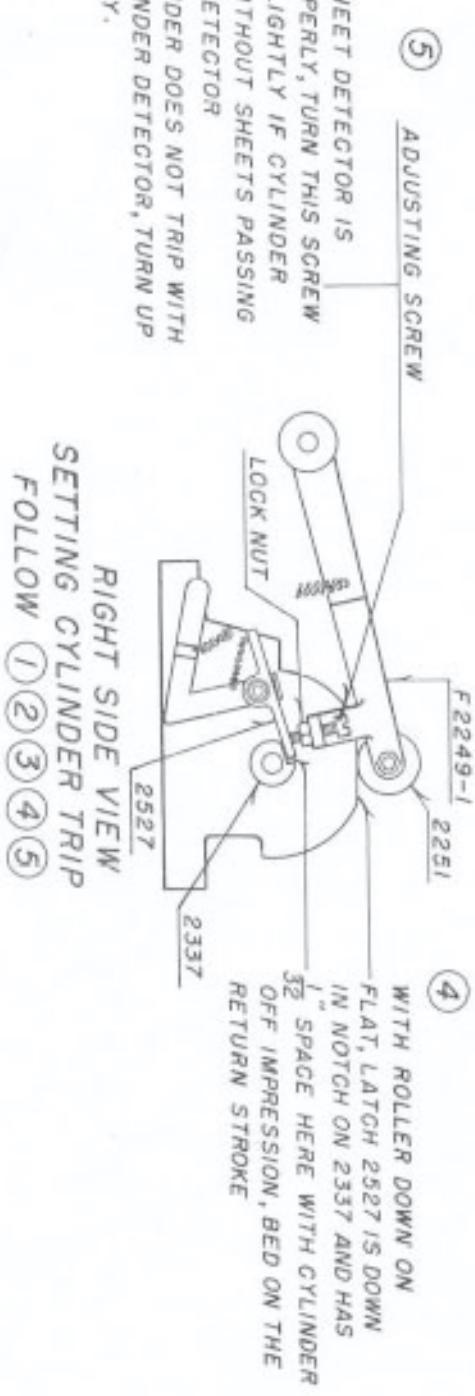
SET CAM NO. 2280 WITH HIGH POINT  
UNDER THE CAM ROLL.

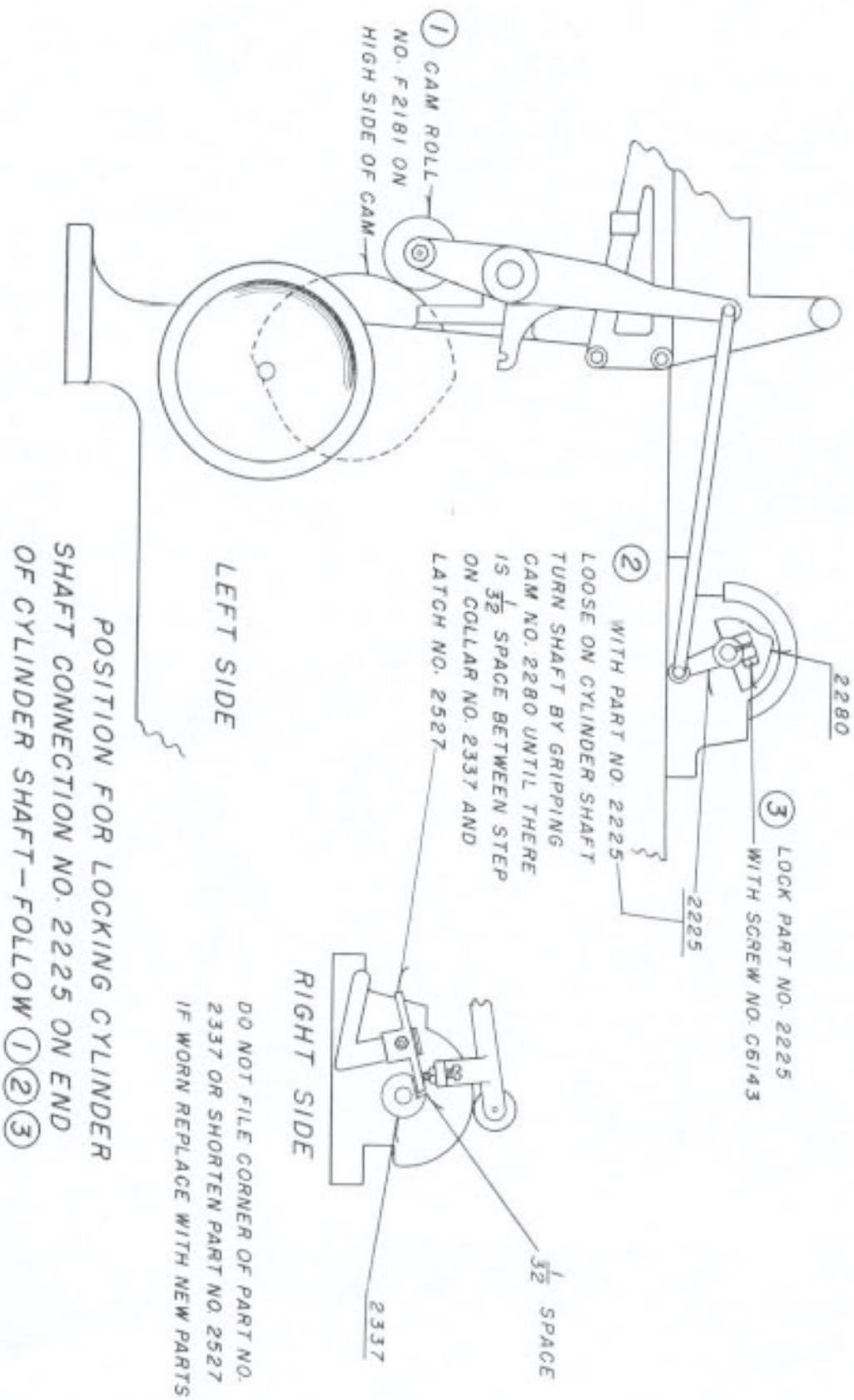
AT THE SAME TIME, SET THE PUSH  
ROLLS NO. F 2564 LIGHTLY ON THE  
SHEET WITH SCREW NO. 2990.

SETTING CAM NO. 2280 ON  
MODELS WHERE CAM IS NOT  
KEYED TO SHAFT

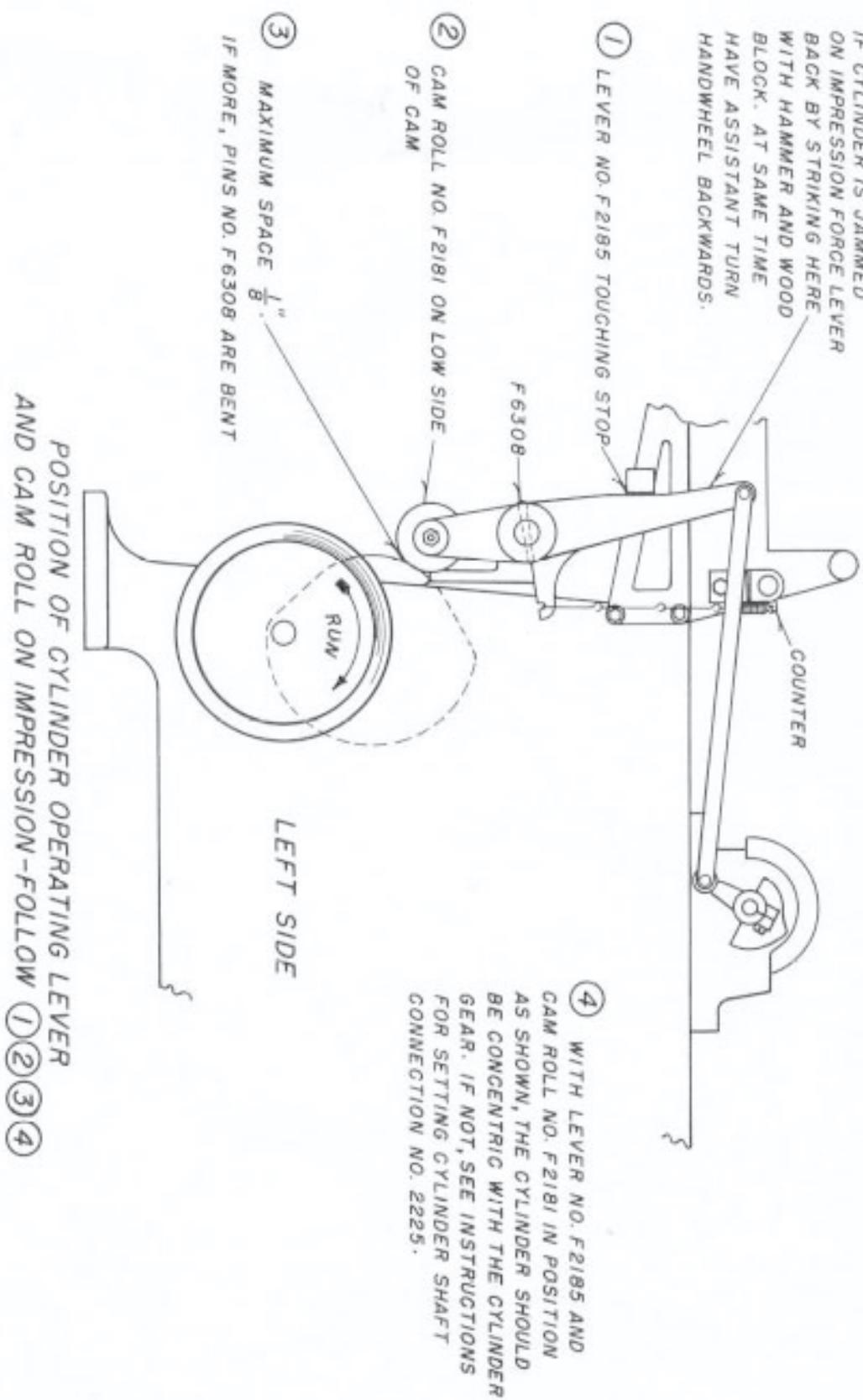


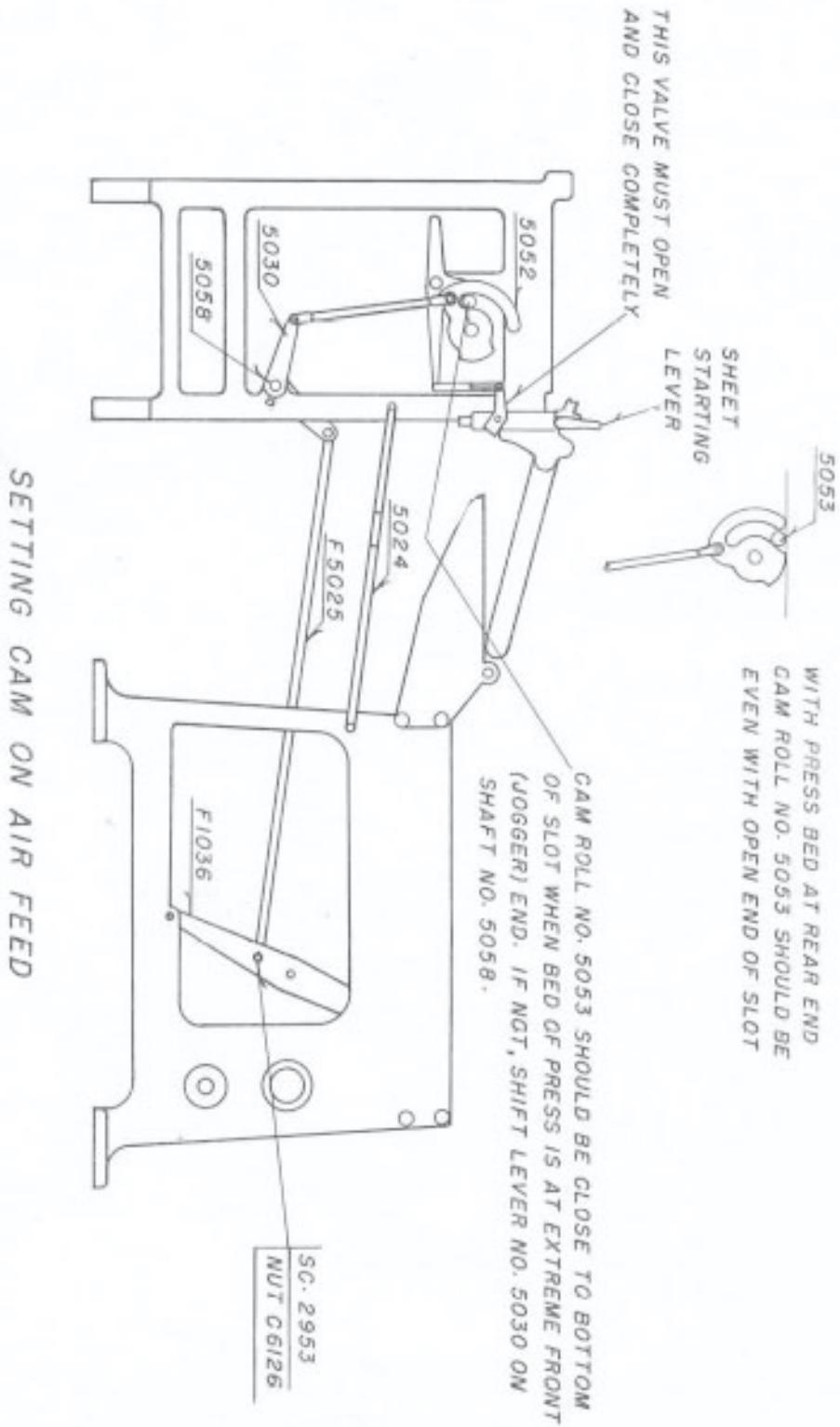
### POSITION OF SHEET DETECTOR ANGLES





IF CYLINDER IS JAMMED  
ON IMPRESSION FORCE LEVER  
BACK BY STRIKING HERE  
WITH HAMMER AND WOOD  
BLOCK. AT SAME TIME  
HAVE ASSISTANT TURN  
HANDWHEEL BACKWARDS.





## PARTS REFERENCE INDEX

*In Numerical Order*

| Ref.<br>No. | Description                               | Ref.<br>No. | Description                                    |
|-------------|---|-------------|--|
| 3           | Right side frame                          | 46-A        | Rear stock guide                               |
| 4           | Left side frame                           | 47          | Brake spring                                   |
| 5           | Stock guide shaft                         | 48          | Clutch spring                                  |
| 6           | Upper tie rod                             | 49          | Pullout roll spring                            |
| 7           | Lower tie rod                             | 50          | Driving pawl spring                            |
| 8           | Clutch latch collar                       | 51          | Brake belt hook                                |
| 10-A        | Caliper adjusting lever                   | 52          | Pullout roll bearing plate                     |
| 11          | Cliper shaft                              | 53          | Lower pullout roll                             |
| 12          | Clutch latch                              | 54          | Upper pullout roll shaft                       |
| 13          | Clutch latch and register board lock stud | 55          | Pullout roll                                   |
| 14          | Brake stud                                | 56          | Caliper roll                                   |
| 15          | Brake pulley                              | 57          | Upper pullout roll bearing adj. screw          |
| 16          | Feed roll shaft collar                    | 58          | Upper pullout roll bearing                     |
| 17          | Front feed roll shaft                     | 62          | Pullout roll gear                              |
| 18          | Ratchet wheel                             | 63          | Drive rack upper bracket                       |
| 18-A        | Front feed roll shaft gear                | 64          | Drive rack arm                                 |
| 19          | Driving rack gear                         | 65          | Drive rack                                     |
| 20          | Front feed roll shaft pawl plate          | 66          | Drive rack guide arm                           |
| 21          | Rear feed roll shaft pawl plate           | 67          | Drive rack lower support bracket               |
| 22          | Clutch coupling                           | 69          | Short drive lever                              |
| 23          | Clutch coupling left pin                  | 70          | Drive lever link                               |
| 24          | Clutch coupling right pin                 | 72          | Long drive lever                               |
| 25          | Clutch coupling collar                    | 73R         | Stock guide right bracket                      |
| 26          | Rear pawl plate retaining collar          | 73L         | Stock guide left bracket                       |
| 27          | Drive rack guide collar                   | 74          | Drive shaft bearing                            |
| 28          | Drive rack guide collar                   | 83-A        | Right and left tape separator                  |
| 29          | Rear feed roll shaft                      | 84          | Tape separator rod                             |
| 30          | Rear feed roll shaft gear                 | 89          | Register board support collar                  |
| 31          | Clutch shaft lever                        | 91          | Drive rack arm stud assem.                     |
| 32          | Clutch shaft                              | 95          | Ball socket                                    |
| 33          | Clutch handle                             | 105         | Sprocket cover                                 |
| 34          | Intermediate gear                         | 112         | Center stock support                           |
| 35          | Intermediate gear stud                    | 113         | Feed roll shaft gear guard                     |
| 36          | Feed roll                                 | 114         | Driving pawl                                   |
| 37          | Feed roll key                             | 115         | Driving pawl stud                              |
| 38          | Front stock guide bracket                 | 117         | Caliper adjusting lever screw nut              |
| 39-A        | Right stock guide                         | 118         | Rear stock guide screw                         |
| 40-A        | Left stock guide                          | 120         | Drive shaft collar                             |
| 43          | Right upper stock support                 | 121         | Caliper roll rubber ring                       |
| 44          | Left upper stock support                  | 122         | Pullout roll rubber ring (sold assembled only) |
| 45          | Front stock guide                         | 123         | Feed roll rubber ring                          |

| Ref.<br>No. | Description  | Ref.<br>No. | Description                               |
|-------------|--|-------------|---|
| 125         | Steel ball   | 195         | Feed support screw                        |
| 126         | Steel ball   | 196         | Feed support collar                       |
| 128         | Pullout roll chain                                     | 197         | Feed locating pin                         |
| 129         | Upper pullout roll adjusting nut                       | 198         | Rear feed roll shaft assem. with clutch   |
| 130         | Pullout roll adjusting nut washer                      | 248         | Drive lever link bearing                  |
| 136         | Register board upper guide                             | 249         | Collar                                    |
| 138         | Top sheet guide center bracket roller                  | 250         | Shaft bearing                             |
| 139         | Top sheet guide center bracket roller clip             | 1038        | Screw                                     |
| 142         | Left auxiliary lower stock support                     | 1081        | Plate link and jogger lever stud          |
| 143         | Right auxiliary lower stock support                    | 1147        | Packer roll end bearing spring            |
| 144         | Brake belt   | 1179        | Stop pin                                  |
| 145         | Drive rack arm stud                                    | 1210        | Washer                                    |
| 146         | Drive rack arm stud pin                                | 1239        | Screw                                     |
| 147         | Clutch shaft and handle assem.                         | 1276        | Vibrator arm spool roll                   |
| 148         | Clutch latch and pin assem.                            | 1472-A      | Lower tape roll ball bearing              |
| 149         | Rear stock guide and screw assem.                      | 1472-B      | Bearer chase                              |
| 150         | Caliper shaft assem.                                   | 1560        | Low chase                                 |
| 151         | Caliper roll assem.                                    | 1797        | Small tape roll                           |
| 152         | Caliper roll (exchange)                                | 1869        | Spring pin                                |
| 153         | Pullout roll assem.                                    | 2104        | Lower tape roll ball bearing              |
| 153         | Pullout roll (exchange)                                | 2138        | Spring                                    |
| 154         | Feeding roll assem.                                    | 2139        | Fountain blade                            |
| 154         | Feeding roll (exchange)                                | 2141        | Fountain adjusting screw                  |
| 155         | Pullout roll chain connecting link                     | 2142        | Fountain roll                             |
| 156         | Drive rack rivet                                       | 2143        | Fountain roll end bearing                 |
| 157         | Clutch handle pin                                      | 2144        | Fountain ratchet wheel                    |
| 158         | Caliper lever screw                                    | 2147        | Fountain ratchet arm                      |
| 159         | Caliper lever screw pin                                | 2148        | Fountain ratchet pawl stud                |
| 160         | Caliper lever screw and pin assem.                     | 2177        | Ratchet arm retaining washer              |
| 168         | Pin  | 2177-A      | Cylinder drive pin                        |
| 169         | Pin  | 2179        | Cylinder offset pin                       |
| 170         | Rear ratchet wheel and gear assem.                     | 2186        | Vibrator spool                            |
| 171         | Front ratchet wheel and gear assem.                    | 2187        | Front ductor shaft end casting            |
| 172         | Pin  | 2194-A      | Rack complete                             |
| 173         | Clutch coupling assem.                                 | 2201        | Jogger assem.                             |
| 175         | Front feed roll shaft driving pawl plate assem.        | 2213        | Vibrator gear                             |
| 176         | Rear feed roll shaft driving pawl plate assem.         | 2221        | Rear vibrator arm                         |
| 181         | Drive shaft  | 2222        | Front vibrator arm                        |
| 190         | Driving pawl spring guard                              | 2223        | Vibrator operating arm                    |
| 191         | Front feed roll shaft No. 17 assem. with No. 171 & 175 | 2224        | Vibrator arm roll stud                    |
| 192         | Feed hinge   | 2225        | Cylinder shaft connection                 |
| 193         | Feed support   | 2230        | Cylinder spring tail bracket              |
| 194         | Stock guide screw                                      | 2238        | Right front and left rear ductor roll arm |
|             |  | 2239        | Side register fork                        |

| Ref.<br>No. | Description   | Ref.<br>No. | Description                          |
|-------------|---|-------------|--------------------------------------|
| 2250        | Automatic cam roll stud                             | 2388        | Ductor roll trip outside guard       |
| 2251        | Automatic cam roll                                  | 2389        | Ductor roll trip inside guard        |
| 2252        | Push roll cam lever                                 | 2390        | Ductor roll trip adjustable stop     |
| 2256        | Push roll lever shaft outside collar                | 2391        | Ductor roll hook pawl stud sleeve    |
| 2258        | Push roll end bearing stud                          | 2392        | Sleeves for ductor roll trip lever   |
| 2259        | Push roll lever shaft left inside adjusting collar  | 2393        | Lock washer                          |
| 2260        | Push roll lever shaft right inside adjusting collar | 2403        | Sheet detector lower guard angle     |
| 2262        | Collar  | 2418        | Register board tape guide            |
| 2265        | Washer  | 2422        | Register board tie rod               |
| 2271        | Left hand nut for vibrator crank stud               | 2423        | Vibrator operating arm stud          |
| 2272        | Main bell crank                                     | 2427        | Trip rod end adjustable cam          |
| 2275        | Jogger frame  | 2431        | Ductor roll trip rod rest            |
| 2280        | Push roll cam                                       | 2432        | Ductor roll trip pawl                |
| 2283        | Jogger operating lever (with roll and stud)         | 2451        | Dowel pin                            |
| 2284        | Jogger operating lever roll                         | 2456        | Screw                                |
| 2286        | Jogger operating lever roll stud                    | 2462        | Chase locating pin                   |
| 2287        | Jogger operating lever adjusting stud               | 2473        | Ductor roll spring                   |
| 2292        | Form roll bracket tie rod                           | 2474        | Cylinder adjusting shim              |
| 2293        | Intermediate vibrator gear spacing collar           | 2478-B      | Push roll shaft                      |
| 2294        | Vibrator operating shaft                            | 2483        | Push roll lever shaft                |
| 2313        | Ink fountain and jogger drive lever stud            | 2485        | Form roll hook and bracket (rear)    |
| 2315        | Right cylinder side frame ecc. bushing              | 2485-1      | Form roll hook and bracket (front)   |
| 2316        | Left cylinder side frame bushing                    | 2488        | Fountain screw spring                |
| 2325        | Jogger I, link and pin assm.                        | 2488-A      | Fountain screw spring                |
| 2326        | Fountain pawl spacing washer                        | 2493        | Screw                                |
| 2327        | Cylinder operating lever top stud                   | 2496        | Register board belt for air feed     |
| 2328        | Washer  | 2496-A      | Register board belt for Model K Feed |
| 2331        | Pin   | 2516        | Jogger operating lever               |
| 2334-A      | Cylinder latch stud                                 | 2523        | Ductor roll trip pawl rest pin       |
| 2337        | Cylinder latch cam (assem. only)                    | 2527        | Trip latch                           |
| 2338        | Register board lower tape roller                    | 2544        | Trip latch spring                    |
| 2339        | Fountain ratchet key pin                            | 2563        | Vibrator shaft end stud              |
| 2340        | Cylinder shaft connection operating lever stud      | 2573-1      | Chase clamp bar                      |
| 2349        | Steel ball  | 2583-A      | Fountain adjusting strip             |
| 2358-A      | Roller ejector spring                               | 2587        | Tympain clamp hinge pin              |
| 2366        | Cylinder operating rod                              | 2594        | Cotter pin                           |
| 2381        | Rear fountain drive rod                             | 2614        | Gripper cam roll                     |
| 2381-A      | Rear fountain rod assm.                             | 2644        | Gripper bar spacing washer           |
| 2383        | Jogger drive rod                                    | 2646        | Gripper bar end spring               |
| 2384        | Front ductor roll trip rod                          | 2660        | Gripper                              |
| 2385        | Rear ductor roll trip rod                           | 2660-1      | Center gripper                       |
| 2386        | Ductor roll trip vertical cam                       | 2660-2      | Right gripper                        |

| Ref.<br>No. | Description                                 | Ref.<br>No. | Description                                |
|-------------|---|-------------|--|
| 2660-3      | Left gripper                                | 4010        | Side support bracket                       |
| 2662        | Tympan reel wrench pin                      | 4012        | Envelope end stop support                  |
| 2797        | Fountain drive rear rod locking latch       | 4107        | Tape roll bearing                          |
| 2798        | Fountain drive front rod locking latch      | 4108        | Tape roll worm gear                        |
| 2799        | Fountain drive rod locking latch hinge stud | 4109        | Tape roll worm                             |
| 2800        | Fountain drive rod locking latch snap stud  | 4110        | Worm shaft bearing bracket                 |
| 2833        | Key   | 4111        | Worm shaft                                 |
| 2848        | Autostop trigger shaft feeler               | 4112        | Worm thrust washer                         |
| 2849        | Autostop trigger shaft feeler block         | 4113        | Worm gear guard                            |
| 2850        | Autostop trigger shaft collar               | 4116        | Worm shaft pulley                          |
| 2851-A      | Autostop trigger shaft collar latch lever   | 4117        | Drive pulley                               |
| 2852        | Autostop trigger shaft latch                | 4118        | End stop                                   |
| 2869        | Counter                                     | 4119        | Side stop support                          |
| 2932        | Ejector roll hinge                          | 4121        | Side stop                                  |
| 2938        | Counter lever                               | 4122        | Drive belt                                 |
| 2939        | Counter lever spring                        | 4123        | Front tape roll                            |
| 2940        | Counter lever link                          | 4124        | Rear tape roll                             |
| 2951        | Screw                                       | 4125        | Left side guide                            |
| 2959        | Thumb screw                                 | 4126        | Tape separator assm.                       |
| 2960        | Screw                                       | 4127        | Extension delivery right side              |
| 2961        | Cotter pin                                  | 4128        | Extension delivery left side               |
| 2962        | Screw                                       | 4129        | Tie rod                                    |
| 2963        | Screw                                       | 4130        | Incline support                            |
| 2967        | Screw                                       | 4131        | Tape separator shaft (not sold separately) |
| 2971        | Screw                                       | 4132        | Tape separator pin                         |
| 2972        | Nut   | 4133        | Incline support dowel pin                  |
| 2973        | Lock washer                                 | C1026       | Main gear shaft                            |
| 2974        | Screw                                       | C1027       | Main gear shaft nut                        |
| 2976        | Thumb screw                                 | C1029       | Connecting link stud                       |
| 2977        | Tympan sheet                                | C1040       | H link short pin                           |
| 2978        | Taper pin                                   | C1058       | Spring pin                                 |
| 2980        | Screw                                       | C1058-A     | Spring pin                                 |
| 2982        | Washer                                      | C1136       | Screw                                      |
| 2983        | Wrench                                      | C1158       | Dowel pin                                  |
| 2984        | Wrench                                      | C1195       | Stop pin                                   |
| 2985        | Wrench                                      | C1242       | Idle gear                                  |
| 2986        | Rubber blanket .022" thick                  | C1299       | Washer                                     |
| 2986-A      | Rubber blanket .042" thick                  | C1371       | Fountain drive lever screw                 |
| 2990        | Thumb screw                                 | C1517       | Jogger T link                              |
| 2991        | Screw                                       | C1518       | Jogger L link                              |
| 4007        | Incline stop                                | C1524       | Jogger rear top board                      |
| 4008        | Tape support board                          | C1525       | Jogger left top board                      |
| 4009        | Tape  | C1526       | Jogger right top board                     |

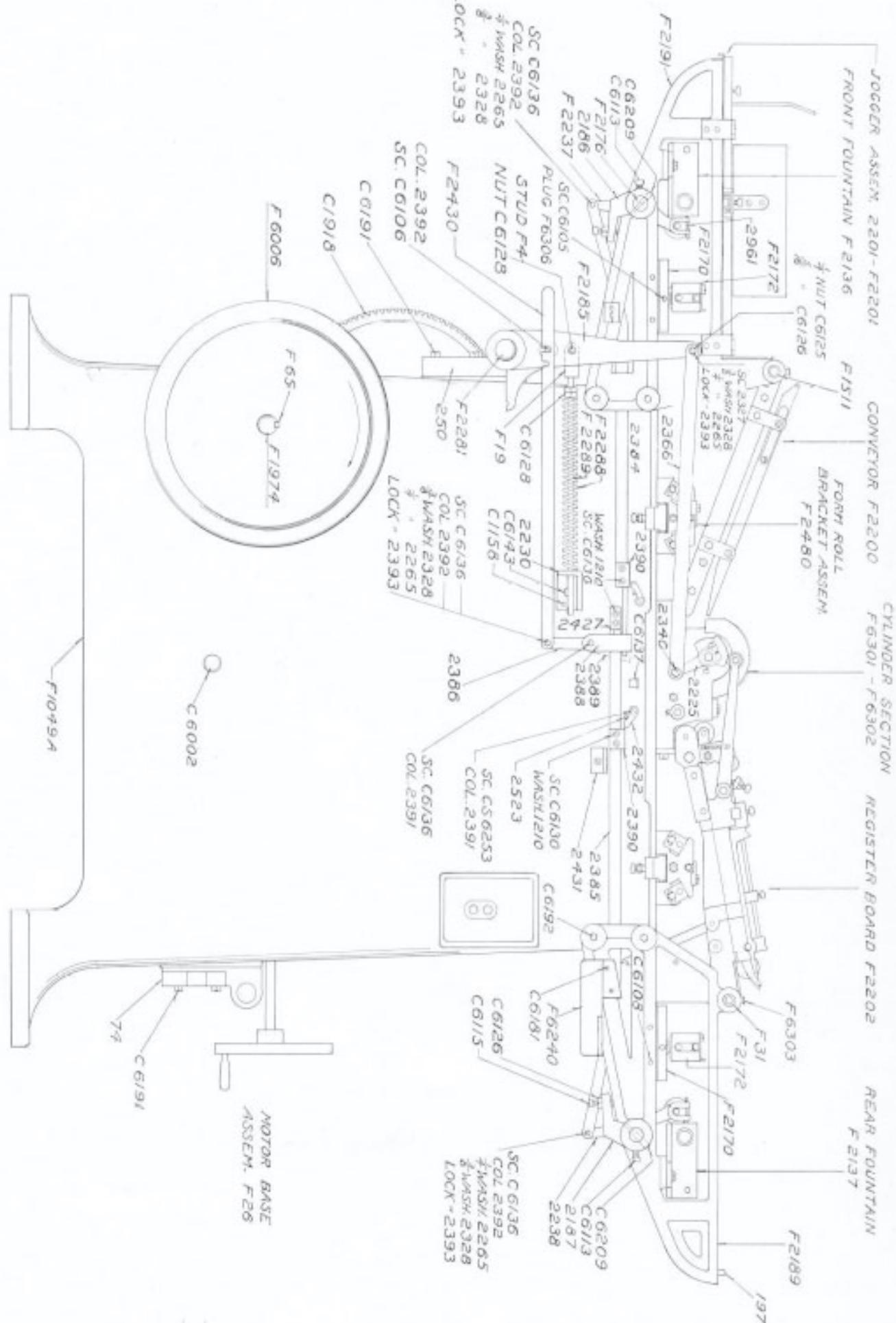
| Ref.<br>No. | Description                                | Ref.<br>No. | Description             |
|-------------|--|-------------|-------------------------|
| C1527       | Jogger left track                          | C6009       | Bed gib                 |
| C1528       | Jogger right track                         | C6011       | Main gear shaft bearing |
| C1529       | Jogger center track                        | C6018-A     | Front right bed slide   |
| C1530       | Jogger track guide                         | C6018-B     | Rear right bed slide    |
| C1531       | Jogger track guide spacing washer          | C6090       | Screw                   |
| C1534       | Jogger T & L link track guide              | C6093       | Screw                   |
| C1536       | Jogger L link stud                         | C6095       | Screw                   |
| C1543       | Jogger wing board                          | C6098       | Screw                   |
| C1544       | Jogger wing board bracket                  | C6099       | Screw                   |
| C1545       | Jogger end stop                            | C6100       | Thumb screw             |
| C1546       | Jogger wing clamp                          | C6101       | Screw                   |
| C1551       | Jogger spring                              | C6102       | Screw                   |
| C1560-A     | Lower tape roll                            | C6104       | Screw                   |
| C1565       | Delivery conveyor tape                     | C6105       | Screw                   |
| C1576       | Conveyor upper drive pulley                | C6106       | Screw                   |
| C1616       | Belt hook                                  | C6107       | Screw                   |
| C1623       | Delivery conveyor belt                     | C6108       | Screw                   |
| C1626       | Form roll bracket clamp                    | C6110       | Screw                   |
| C1683       | Jogger T & L link spacing washer           | C6113       | Screw                   |
| C1791       | Conveyor tie rod                           | C6115       | Screw                   |
| C1869-A     | Lower tape roll bearing                    | C6116       | Screw                   |
| C1918       | Main gear                                  | C6118       | Screw                   |
| C1951       | Form roll bracket clamp pin                | C6121       | Washer                  |
| C1953       | Form roll bracket slide rod                | C6122       | Nut                     |
| C2083       | Form roll bracket slide rod bracket        | C6123       | Nut                     |
| C2130       | Form roll bracket clamp screw              | C6124       | Nut                     |
| C2253       | Shove roll stud                            | C6125       | Nut                     |
| C2300       | Conveyor top sheet guide rod upper bracket | C6126       | Nut                     |
| C2300-A     | Conveyor top sheet guide rod lower bracket | C6127       | Nut                     |
| C2301       | Conveyor side arm and top sheet guide rod  | C6128       | Nut                     |
| C2303       | Conveyor top sheet guide lock              | C6130       | Screw                   |
| C2349       | Steel ball                                 | C6131       | Screw                   |
| C2409       | Top sheet ball rider bracket               | C6133       | Wing nut                |
| C2410       | Shove roll arm                             | C6136       | Screw                   |
| C2421       | Tape separator shaft link                  | C6137       | Oil cup                 |
| C2435       | Shove roll                                 | C6141       | Taper pin               |
| C2458       | Knurled nut                                | C6143       | Screw                   |
| C2512       | Tape separator shaft pin                   | C6144       | Screw                   |
| C2513       | Top sheet ball rider assem.                | C6145       | Oil cup                 |
| C2669       | Tape separator and pins assem.             | C6151       | Connecting link bushing |
| C6001       | Connecting link stud nut                   | C6152       | Oil cup                 |
| C6002       | Vertical lever bottom pin                  | C6154       | Main gear key           |
| C6007       | Lower tape roll bearing plate              | C6155       | Screw                   |

| Ref.<br>No. | Description                                   |
|-------------|---|
| C6157       | Shove roll assem.                             |
| C6158       | Tape separator shaft                          |
| C6160       | Screw   |
| C6161       | Screw   |
| C6162       | Screw   |
| C6163       | Screw   |
| C6165       | Screw   |
| C6170       | Lock washer                                   |
| C6173       | Screw   |
| C6175       | Wrench  |
| C6181       | Screw   |
| C6184       | Screw   |
| C6185       | Screw   |
| C6186       | Screw   |
| C6187       | Nut   |
| C6188       | Screw   |
| C6189       | Screw   |
| C6190       | Screw   |
| C6191       | Screw   |
| C6192       | Screw   |
| C6193       | Screw   |
| C6197       | Screw   |
| C6198       | Screw   |
| C6199       | Oil cup                                       |
| C6200       | Screw   |
| C6201       | Thumb screw                                   |
| C6202       | Rivet   |
| C6203       | Screw   |
| C6205       | Thumb screw                                   |
| C6207       | Taper pin                                     |
| C6208       | Screw   |
| C6209       | Taper pin                                     |
| C6210       | Taper pin                                     |
| C6211       | Screw   |
| C6212       | Wrench  |
| C6213       | Wrench  |
| C6221       | Screw   |
| C6225       | Thumb screw                                   |
| C6238       | Wrench  |
| CS6237      | Washer  |
| CS6243      | Screw   |
| CS6248      | Screw   |
| CS6250      | Lock washer                                   |
| CS6253      | Screw   |
| F4          | Cylinder operating spring rod connecting stud |
| F5          | Lower gripper cam end pin                     |
| F6          | Automatic stop trigger plate                  |
| F7          | Automatic stop trigger latch                  |
| F8          | Automatic stop trigger latch pin              |
| F9          | Form roll slide rod front guard               |
| F10         | Form roll slide rod rear short guard          |
| F11         | Form roll slide rod rear long guard           |
| F12         | Upper motor base                              |
| F13         | Lower motor base                              |
| F14         | Motor adjusting screw                         |
| F15         | Motor adjusting screw collar                  |
| F16         | Rear fountain dust guard                      |
| F17         | Push roll cam key                             |
| F18         | Cylinder operating rod spring connection      |
| F19         | Gripper crank spring assem.                   |
| F23         | Motor base side rod                           |
| F25         | Adjustable motor base assem.                  |
| F26         | Fountain roll end bearing bushing             |
| F29         | Lower gripper cam center pin                  |
| F30         | Feed bracket bushing                          |
| F31         | Oil cup                                       |
| F32         | Oil cup                                       |
| F33         | Cylinder bushing                              |
| F34         | Oil cup                                       |
| F35         | Tympan clamp spacing collar                   |
| F36         | Oil cup                                       |
| F37         | Jogger clamp                                  |
| F38         | Jogger clamp assem.                           |
| F39         | Jogger clamp bracket                          |
| F40         | Jogger clamp pin                              |
| F41         | Auxiliary side guide right bracket            |
| F42         | Ball socket rod flange bracket                |
| F43         | Top sheet lower guide                         |
| F45         | Ball socket rod hinge                         |
| F46         | Auxiliary left side guide                     |
| F47         | Top sheet upper guide                         |
| F48         | Auxiliary left guide bracket                  |
| F49         | Angle roll bearing                            |
| F50         | Main shaft left spacing collar                |
| F51         | Register board support                        |
| F52         | Angle roll vibrator                           |

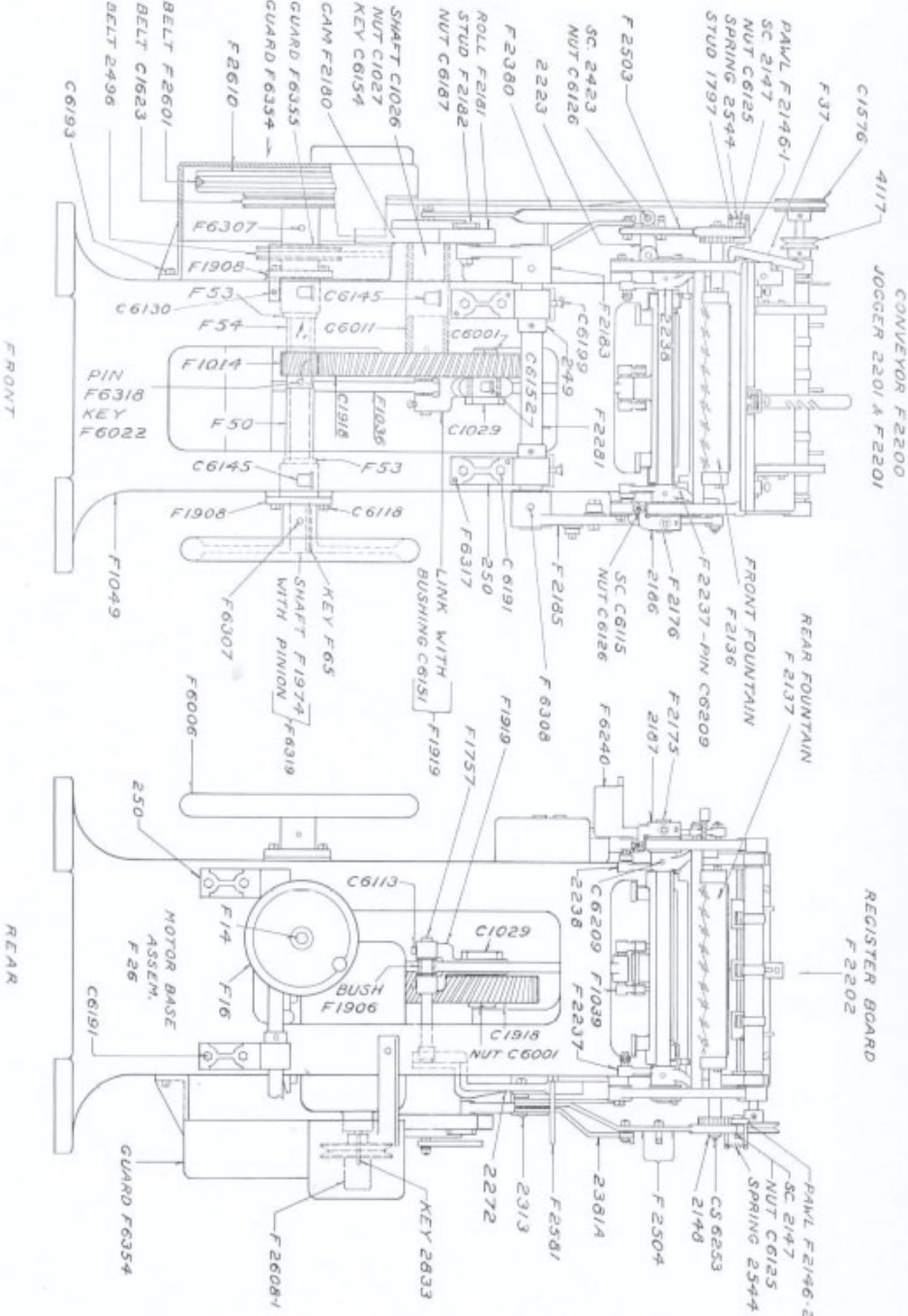
| Ref.<br>No. | Description  | Ref.<br>No. | Description                                       |
|-------------|--|-------------|---|
| F53         | Main shaft thrust washer                             | F2166       | Form roll left bracket                            |
| F54         | Main shaft right spacing collar                      | F2167       | Left front and right rear form roll bearing       |
| F55         | Top sheet guide center bracket                       | F2168       | Right front and left rear form roll bearing       |
| F57         | Fountain pawl pin                                    | F2169       | Cylinder gear (sold assem. only)                  |
| F58         | Oil cup clip   | F2170       | Angle roll bearing bracket                        |
| F59         | Lower pullout roll sprocket                          | F2172       | Angle roll bearing assem.                         |
| F60         | Register board tape roll sprocket                    | F2173       | Angle and ductor roll core                        |
| F61         | Oil cup  | F2173A1     | Angle and ductor roll complete                    |
| F62         | Oil cup  | F2174       | Form roll core                                    |
| F63         | Auxiliary center ball bracket clamp                  | F2174A1     | Form roll complete                                |
| F64         | H link cover   | F2175       | Rear ductor shaft                                 |
| F65         | Main shaft key                                       | F2176       | Front ductor shaft                                |
| F66         | Vibrator shaft center bearing                        | F2178       | Vibrator roller (without gear and spool)          |
| F67         | Auxiliary center ball bracket                        | F2180       | Cylinder operating cam                            |
| F106-1      | Register board pulley (machines<br>No. F1000 and up) | F2181       | Cylinder operating cam roll stud                  |
| F140        | Auxiliary top sheet guide                            | F2182       | Short cylinder operating lever                    |
| F1014       | Pinion   | F2183       | Long cylinder operating lever                     |
| F1036       | Vertical lever                                       | F2185       | Right feed table bracket                          |
| F1039       | H link   | F2188       | Left feed table bracket                           |
| F1040       | H link pin   | F2189       | Right delivery table bracket                      |
| F1049       | Main frame   | F2190       | Left delivery table bracket                       |
| F1242       | Feed roll idle gear                                  | F2191       | Impression cylinder with tympan clamp and reel    |
| F1420       | Chase bottom plate                                   | F2192       | Impression cylinder assem. with grippers,         |
| F1511       | Jogger bracket bushing                               | F2192-A     | Impression cylinder with grippers,                |
| F1522       | Base board for envelope extension delivery           | F2192-A1    | cams and delivery bracket                         |
| F1709       | Lower feed roll left bearing                         | F2192-2     | Metal cylinder only                               |
| F1710       | Lower feed roll right bearing                        | F2195       | Type bed  |
| F1757       | Vertical lever center pin assem.                     | F2200       | Delivery conveyor assem.                          |
| F1797       | Spring stud  | F2201       | Base frame assem. for envelope extension delivery |
| F1906       | Vertical lever bushing                               | F2202       | Register board assem.                             |
| F1908       | Drive shaft bearing                                  | F2205       | Vibrator roll complete                            |
| F1919       | Connecting link assem.                               | F2235       | Right cylinder side frame                         |
| F1974       | Drive shaft  | F2236       | Left cylinder side frame                          |
| F2136       | Front fountain assem. with ratchet                   | F2237       | Left front and right rear ductor arm              |
| F2137       | Rear fountain assem. with ratchet                    | F2249-1     | Automatic latch lever (see F2515-1)               |
| F2146       | Fountain ratchet pawl                                | F2253       | Push roll arm roller stud                         |
| F2146-1     | Front fountain pawl assem.                           | F2254       | Push roll arm roller                              |
| F2146-2     | Rear fountain pawl assem.                            | F2255       | Push roll lever shaft adjuster                    |
| F2149       | Fountain back  | F2257       | Left push roll end bearing                        |
| F2159       | Front ink plate                                      | F2262       | Collar  |
| F2161       | Rear ink plate                                       | F2264       | Vibrator crank stud (left hand)                   |
| F2161       | Form roll right bracket                              | F2273       | Cylinder shaft (sold assem. only) See F2672       |

| Ref.<br>No. | Description                                | Ref.<br>No. | Description  |
|-------------|--|-------------|--|
| F2275       | Base frame for envelope extension delivery | F2480-1     | Form roll rear bracket assem.                          |
| F2276       | Ductor cam roll                            | F2481       | Side register slide rod                                |
| F2277       | Ductor cam roll stud                       | F2482-1     | Sheet detector shaft                                   |
| F2279-1     | Feed conveyor pulley                       | F2496       | Register board belt (previous to machine No. F1000)    |
| F2280       | Push roll and gripper release cam          | F2503       | Front fountain pawl lever and studs assem.             |
| F2281       | Cylinder operating lever shaft             | F2504       | Rear fountain pawl lever and studs assem.              |
| F2282       | Automatic trip cam (not sold separately)   | F2505       | Front ductor arms and shaft assem.                     |
| F2288       | Cylinder operating spring                  | F2506       | Rear ductor arms and shaft assem.                      |
| F2289       | Cylinder operating spring rod              | F2515-1     | Automatic latch lever assem.                           |
| F2291-R     | Vibrator clip (right front and left rear)  | F2518       | Push roll lever shaft and castings assem.              |
| F2291-L     | Vibrator clip (left front and right rear)  | F2519       | Automatic latch lever spring                           |
| F2299       | Delivery conveyor side arm                 | F2542-A     | Upper feed roll assem.                                 |
| F2301       | Autostop shaft bracket tie rod             | F2542-1     | Upper feed roll for cartons (give thickness of carton) |
| F2302       | Conveyor top sheet guide                   | F2543-A     | Lower feed roll assem.                                 |
| F2319       | Right side register casting                | F2546       | Upper feed roll bearing                                |
| F2320       | Left side register casting                 | F2547       | Register board right side                              |
| F2323       | Feed roll idle gear shaft for ejectors     | F2548       | Register board left side                               |
| F2323-B     | Feed roll idle gear shaft for grippers     | F2552       | Register board right side (assem. with studs)          |
| F2332       | Upper feed roll spring seat                | F2553       | Register board left side (assem. with studs)           |
| F2346       | Register board plate                       | F2558       | Right ejector  |
| F2347       | Register board tape roll                   | F2559       | Left ejector   |
| F2359       | Right ejector band                         | F2564       | Push roll  |
| F2360       | Left ejector band                          | F2565       | Ejector bar  |
| F2373-1     | Right side register                        | F2569       | Register board tape                                    |
| F2378       | Push roll bearing                          | F2570       | Upper tape roll shaft                                  |
| F2380       | Vibrator shaft drive link                  | F2572       | Hollow tape roll                                       |
| F2382       | Front fountain rod                         | F2581       | Fountain rod rest pin                                  |
| F2382-A     | Front fountain rod assem.                  | F2584       | Tympa-clamp  |
| F2398-1     | Sheet detector body assem.                 | F2585       | Tympa reel   |
| F2399       | Sheet detector plain angle                 | F2586       | Tympa reel   |
| F2402       | Sheet detector                             | F2593       | Tympa reel lock  |
| F2406       | Sheet detector threaded angle              |             | Cylinder gear and cam bushing (not sold separately)    |
| F2412       | Sub ejector                                |             |  |
| F2424       | Moving guide rod end plate                 | F2601       | Main drive belt  |
| F2425       | Lower rest for register board              | F2608-1     | Adjustable speed pulley                                |
| F2430       | Ductor roll trip operating rod             | F2610       | Main drive pulley                                      |
| F2434       | Side register slide rod spring             | F2615       | Gripper bar  |
| F2459       | Upper feed roll spring                     | F2619-1     | Star wheel   |
| F2460       | Right push roll end bearing                | F2620       | Plain delivery wheel                                   |
| F2471       | Cylinder gear, cam and bushing assem.      | F2624       | Roller ejector hinge pin                               |
| F2474       | Cylinder adjusting shim                    | F2626       | Right roller ejector hinge assm.                       |
| F2479       | Push roll lever spring                     | F2627       | Left roller ejector hinge assm.                        |
| F2480       | Form roll front bracket assem.             |             |  |

| Ref.<br>No. | Description                                   | Ref.<br>No. | Description  |
|-------------|---|-------------|--|
| F2633       | Delivery roll end bracket                     | F6311       | Top sheet lower auxiliary guide  |
| F2634       | Delivery roll bracket cover                   | F6312       | Register spring guide  |
| F2636-A     | Delivery roll shaft assem.                    | F6313       | Center ball socket rod   |
| F2640       | Trip latch lever                              | F6314       | Ball socket rod hinge pin  |
| F2653       | Lower gripper cam                             | F6315       | Ball socket rod hinge bracket assem.   |
| F2653-A     | Lower gripper cam                             | F6316       | Top sheet guide rest bar   |
| F2654       | Top gripper cam                               | F6317       | Dowel pin  |
| F2663       | Delivery roll bracket assem. with star wheel  | F6318       | Taper pin  |
| F2663-A     | Delivery roll bracket assem. with plain wheel | F6319       | Main shaft and pinion assem.   |
| F2664       | Gripper crank                                 | F6320       | Screw  |
| F2668-1     | Delivery tape roll shaft                      | F6321       | Screw  |
| F2670       | Upper tape roll and shaft assem.              | F6322       | Narrow stock support   |
| F2672       | Cylinder shaft assem.                         | F6323       | Auxiliary center ball bracket assem.   |
| F2700       | Register board feed plate                     | F6324       | Dowel pin  |
| F2784-1     | Top sheet guide cross bar                     | F6325       | Top sheet guide assem.   |
| F2834       | Autostop switch bracket                       | F6326       | Thumb screw  |
| F2837       | Automatic stop trigger                        | F6327       | Auxiliary left side guide assem.   |
| F2839       | Autostop switch                               | F6328       | Ball socket rod and hinge bracket assem. with balls, roller and center bracket |
| F2845       | Autostop trigger shaft right bracket assem.   | F6329       | Screw  |
| F2845-A     | Autostop trigger shaft left bracket           | F6330       | Sheet detector spring  |
| F2846       | Autostop trigger shaft left bracket assem.    | F6331       | Lock washer  |
| F2847       | Automatic stop trigger shaft                  | F6332       | Feed weight  |
| F2869-A     | Counter complete                              | F6333       | Screw  |
| F2909       | Complete automatic stop                       | F6334       | Nut  |
| F2930       | Left ejector body                             | F6335       | Screw  |
| F2931       | Right ejector body                            | F6336       | Tympain reel washer  |
| F2937       | Counter bracket                               | F6337       | Screw  |
| F5025       | Feed drive rod                                | F6338       | Screw driver   |
| F6006       | Hand wheel                                    | F6339       | Screw driver   |
| F6008       | Conveyor stop                                 | F6340       | Screw driver   |
| F6022       | Pinion key                                    | F6341       | Chase clamp quoin  |
| F6168       | Ball bearing ejector roll and stud            | F6342       | Quoin key  |
| F6240       | Tool tray                                     | F6343       | Quick change quoin (give length required)                                      |
| F6300       | Jogger hinge                                  | F6344       | Sectional fo'm roll (give length required)                                     |
| F6301       | Cylinder section (for ejectors)               | F6345       | Oil can  |
| F6302       | Cylinder section (for grippers)               | F6346       | Wrench   |
| F6303       | Oil cup                                       | F6347       | 1-lb. can Multipress black ink   |
| F6304       | Oil cup                                       | F6348       | Bed slide shim   |
| F6305       | Gib head key                                  | F6349       | Ink plate shim   |
| F6306       | Adjusting plug                                | F6350       | Oil cup  |
| F6307       | Taper pin                                     | F6351       | Gear for delivery roll shaft   |
| F6308       | Taper pin                                     | F6352       | Oil wick for vibrator  |
| F6309       | Screw   | F6353       | Oil wick spring  |
| F6310       | Dowel pin                                     | F6354       | Main drive belt guard  |
|             |   | F6355       | Oil drip belt guard  |



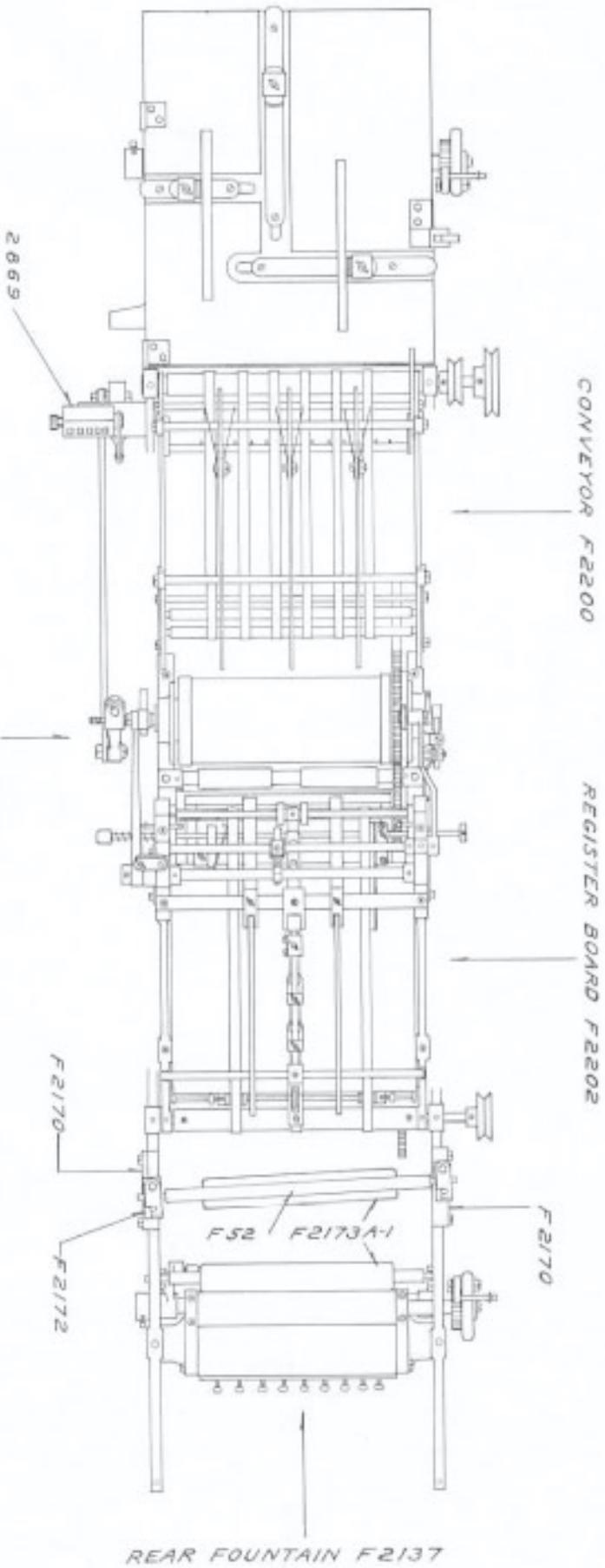


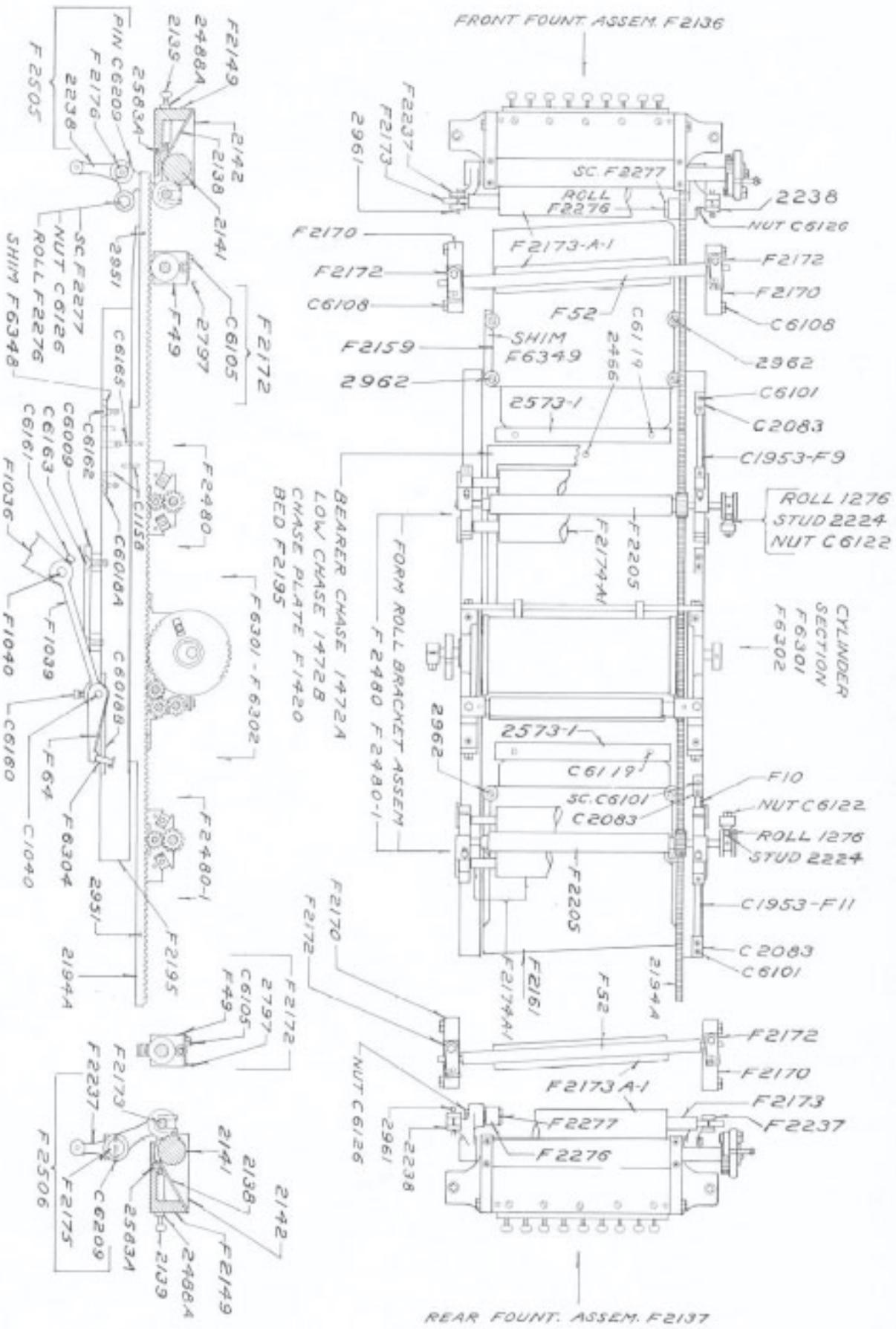


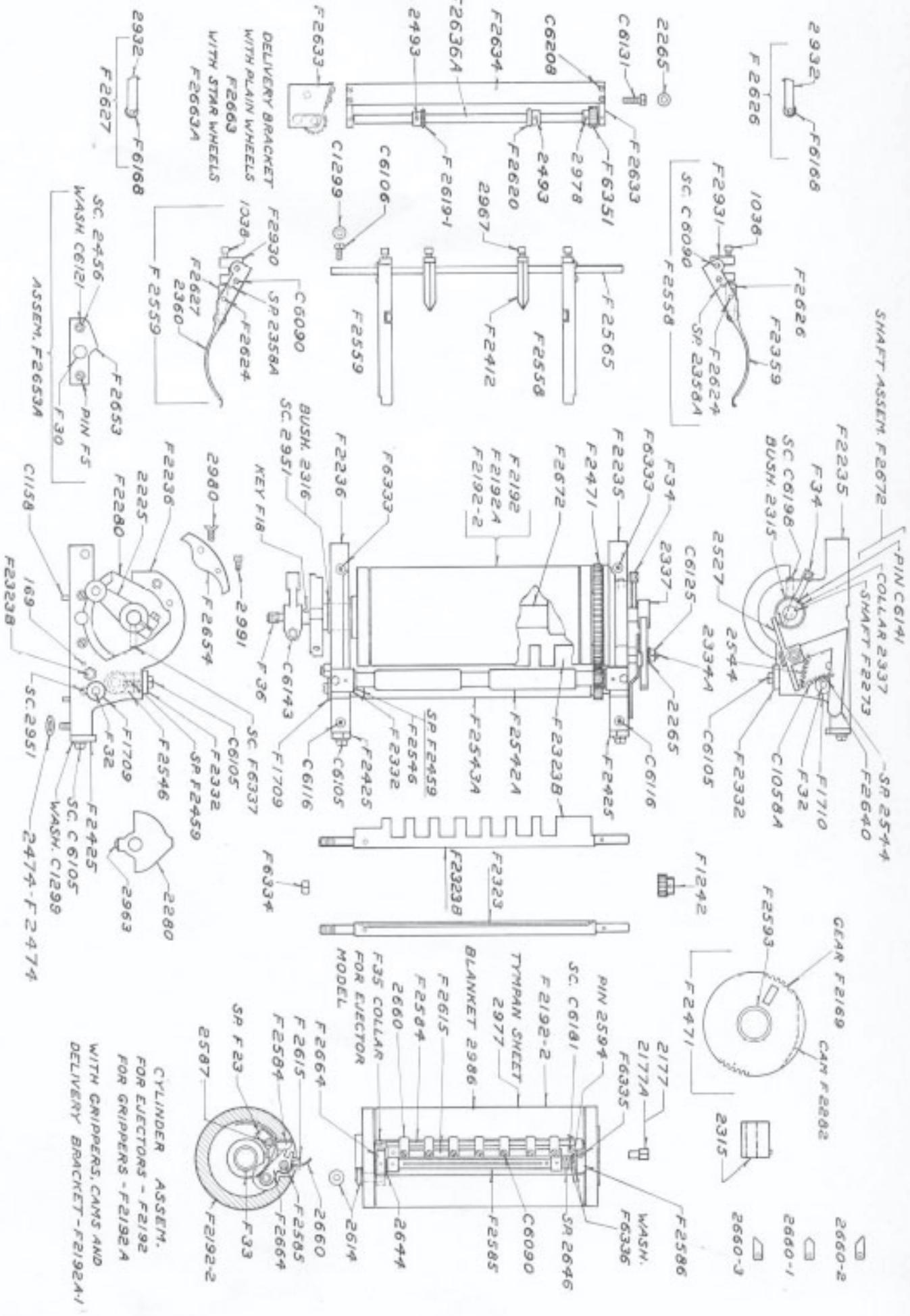
JOGGER ASSEM 2201-F2201

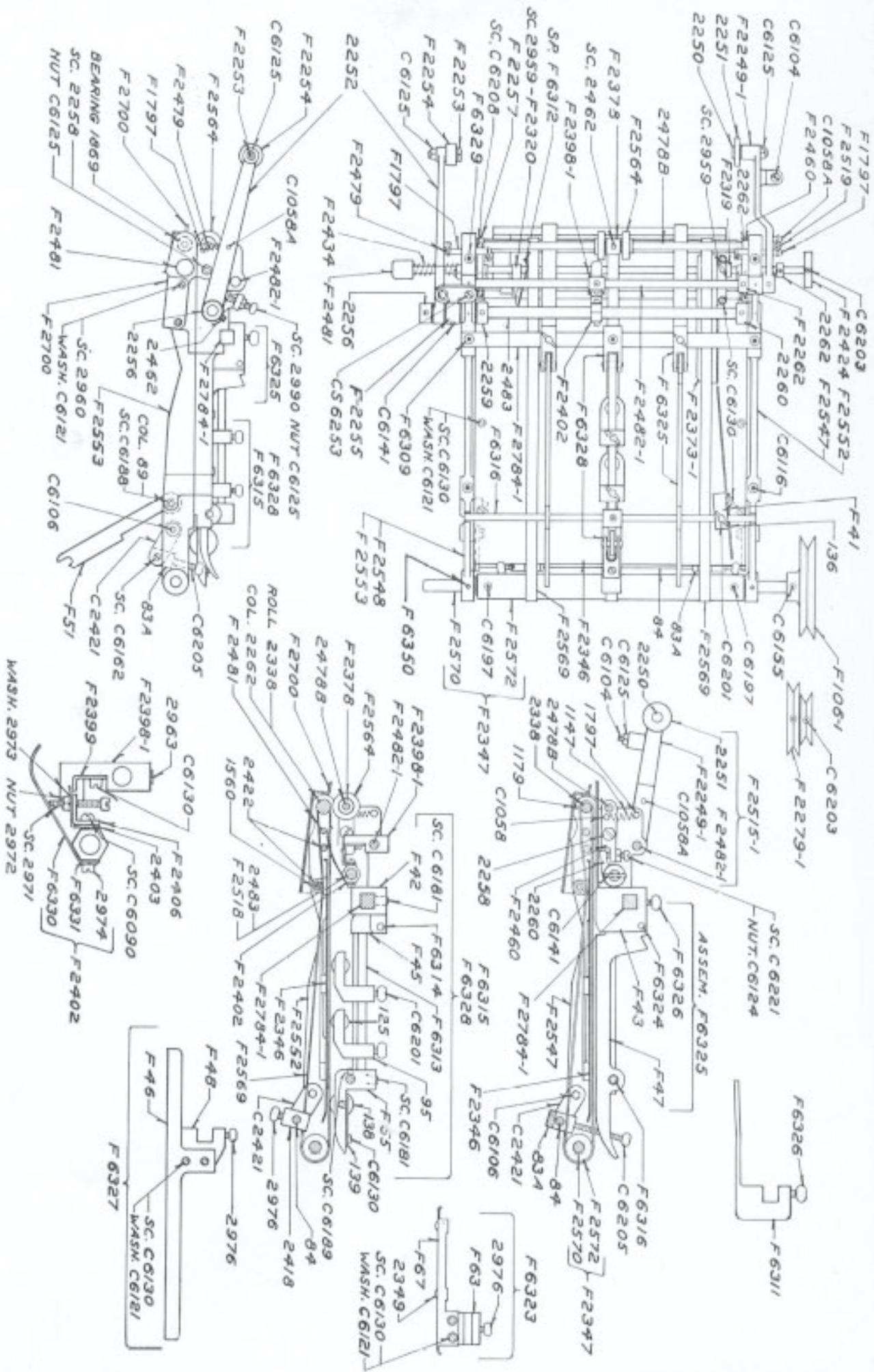
TOP VIEW OF PRESS WITHOUT FEED

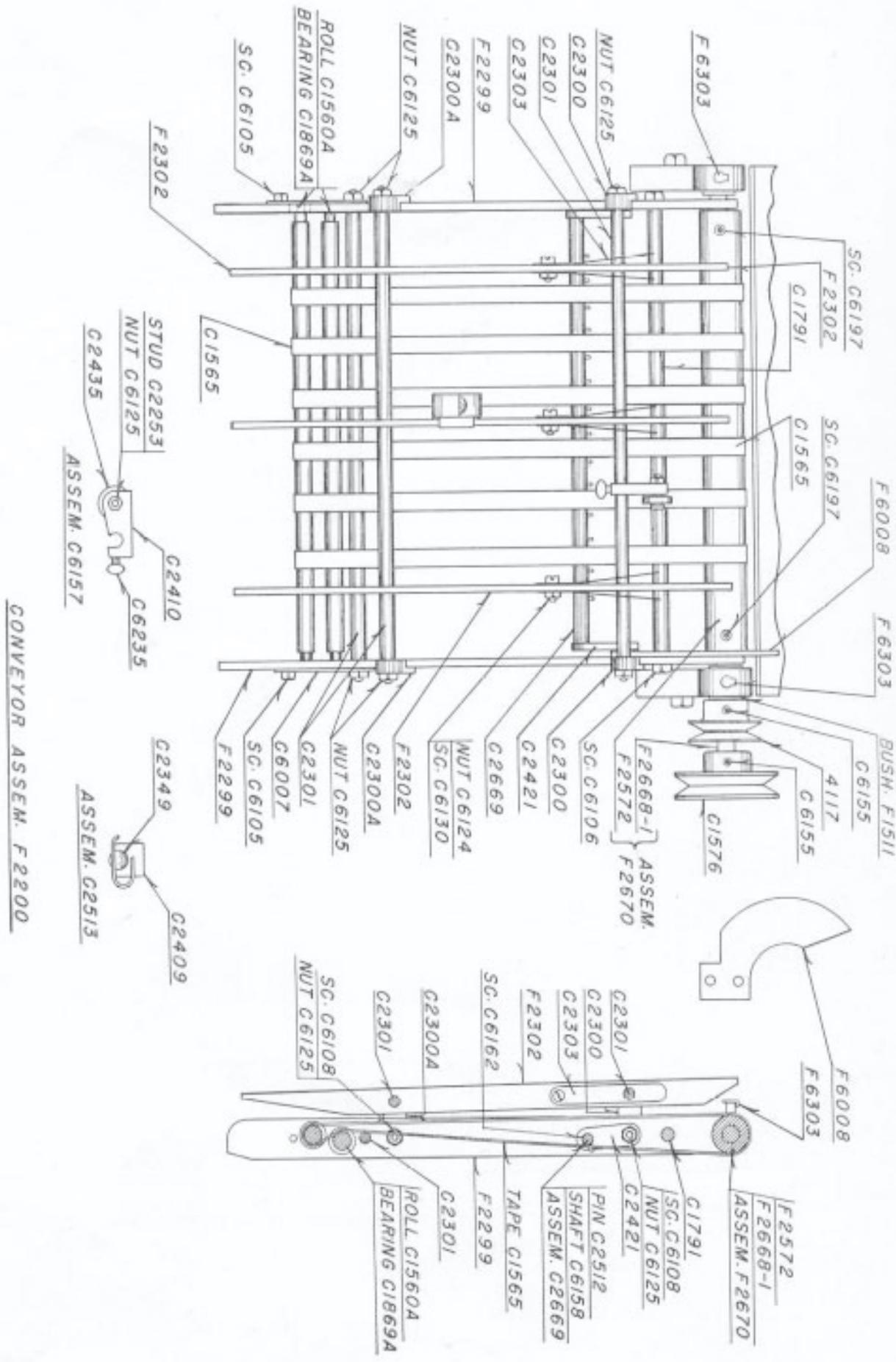
CYLINDER SECTION  
F6301 - F6302

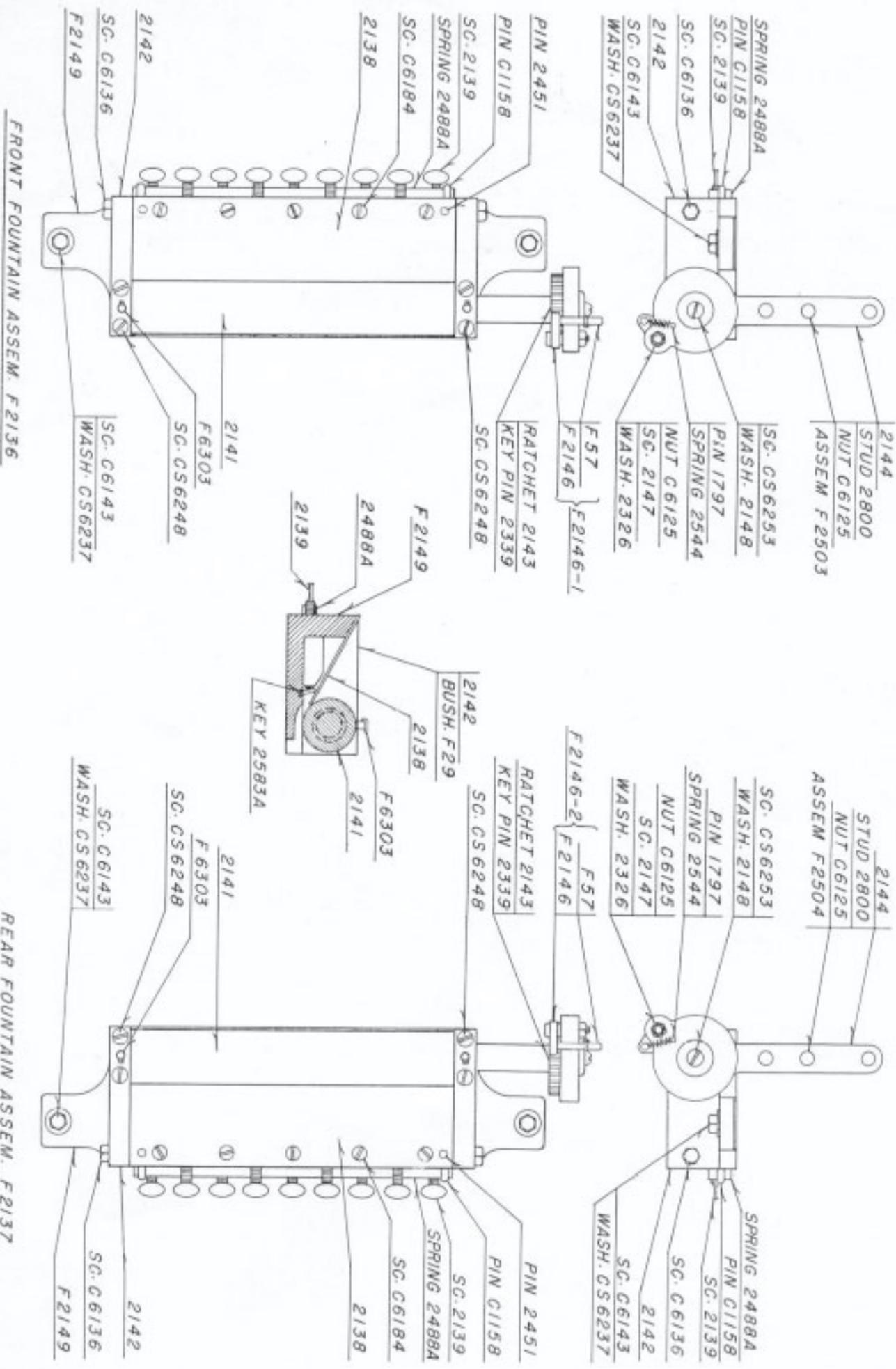


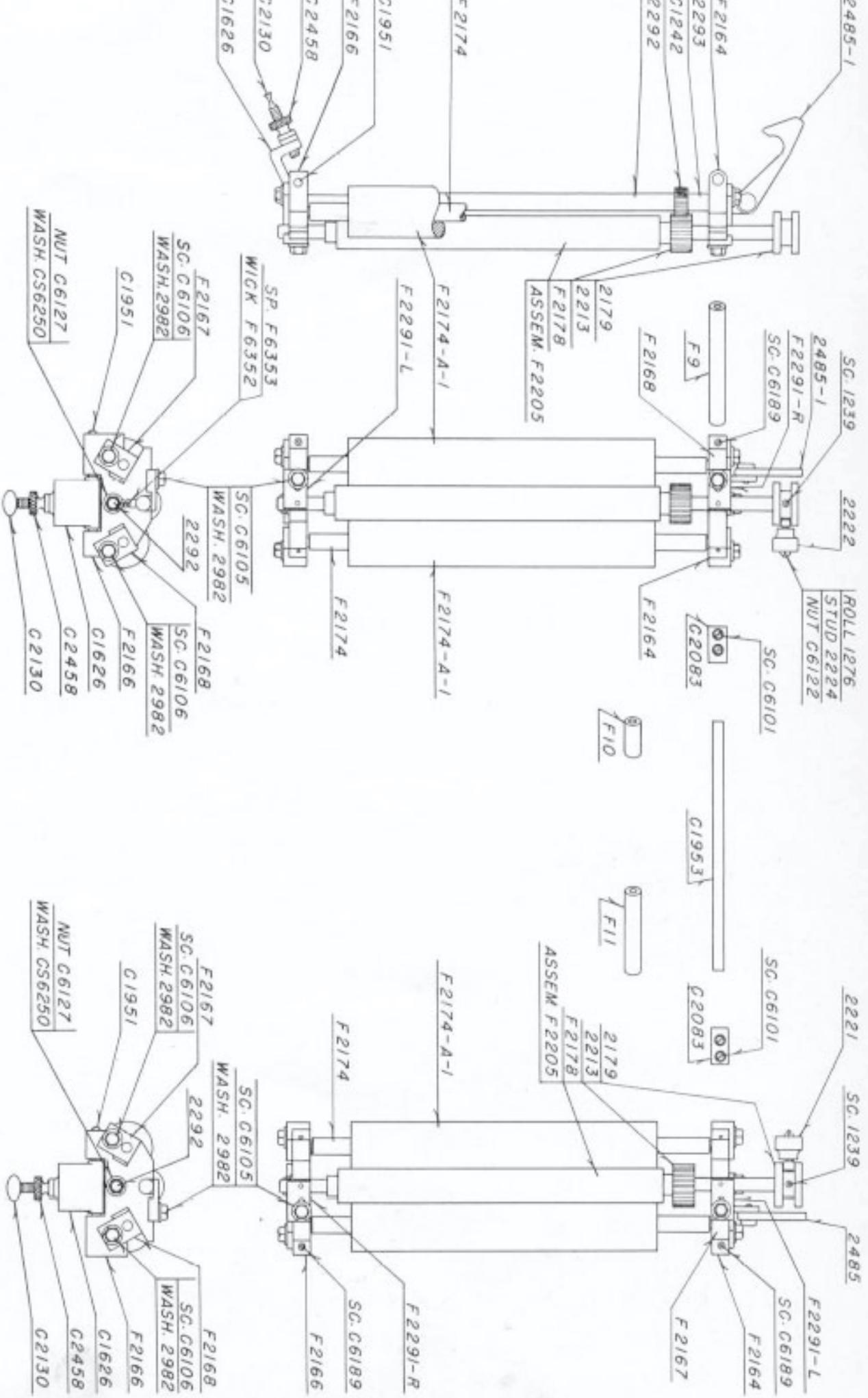


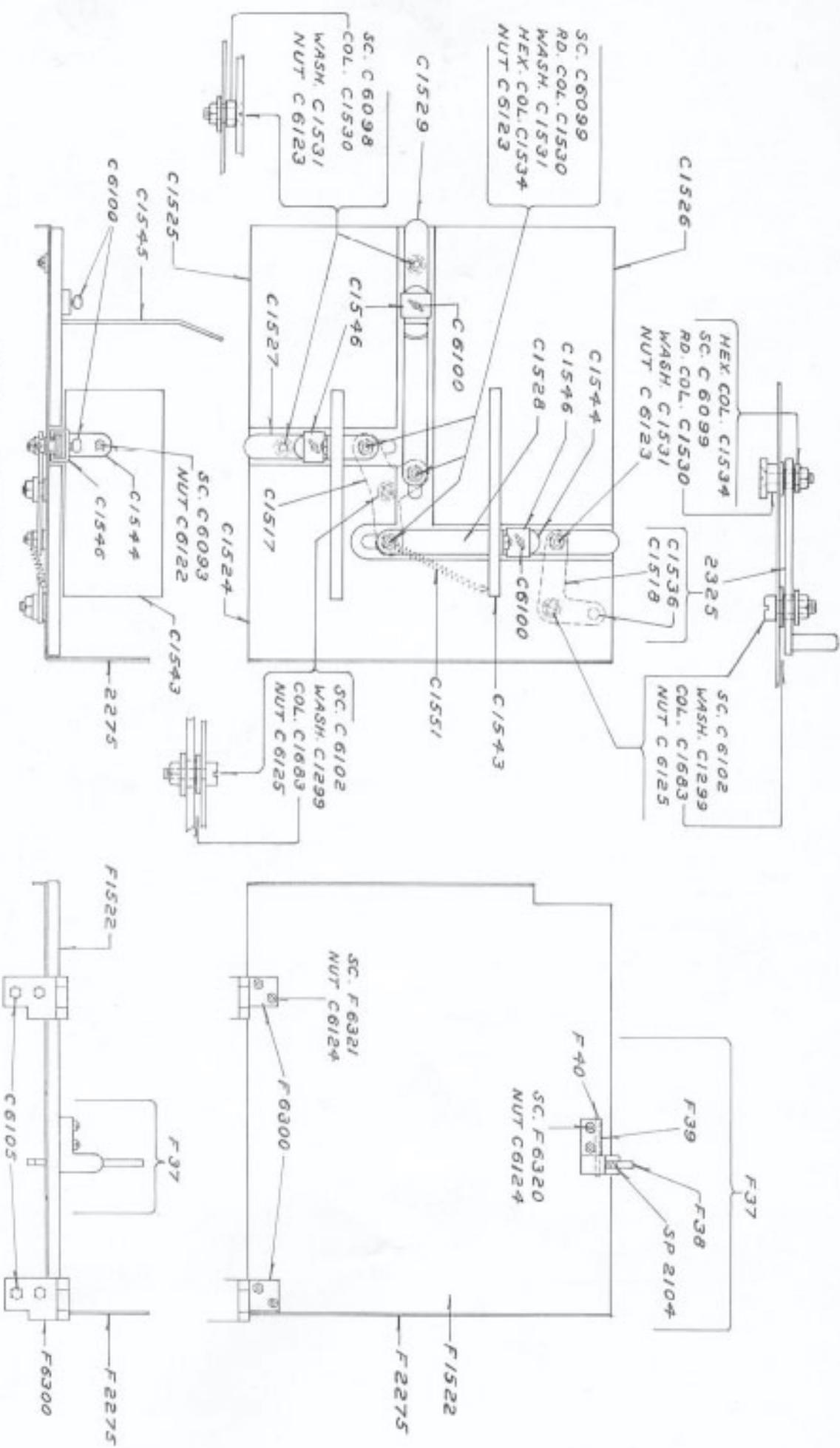


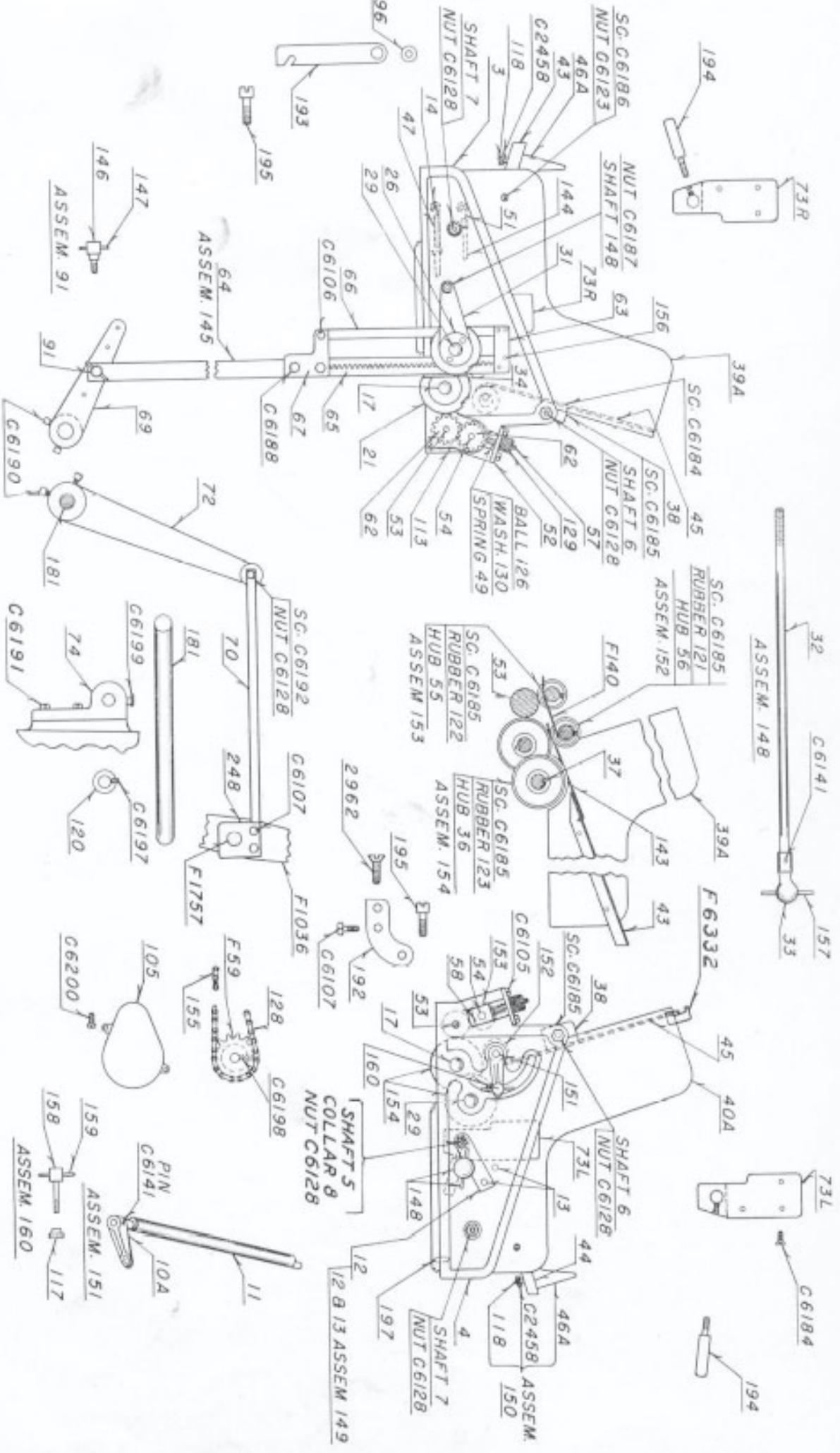




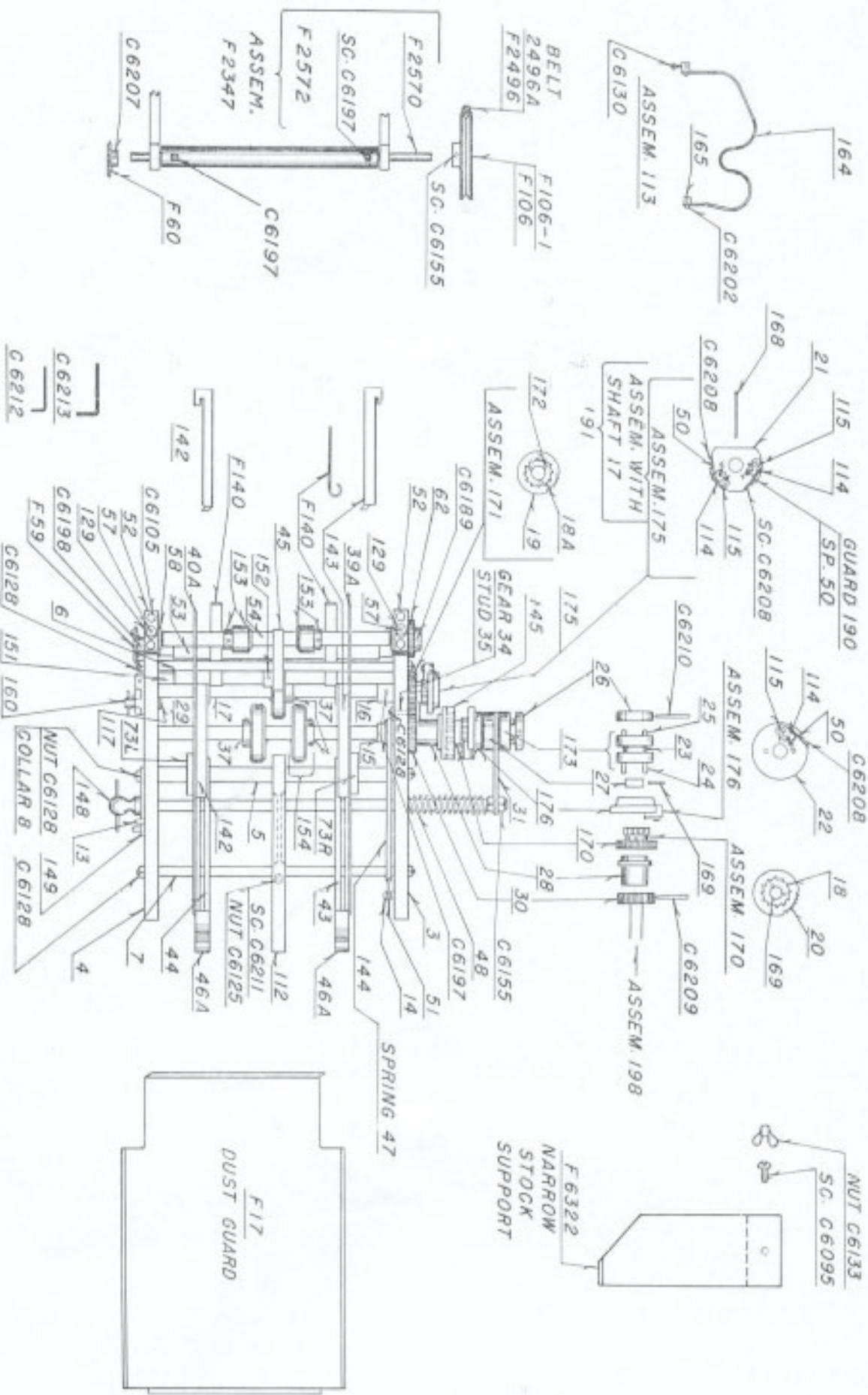


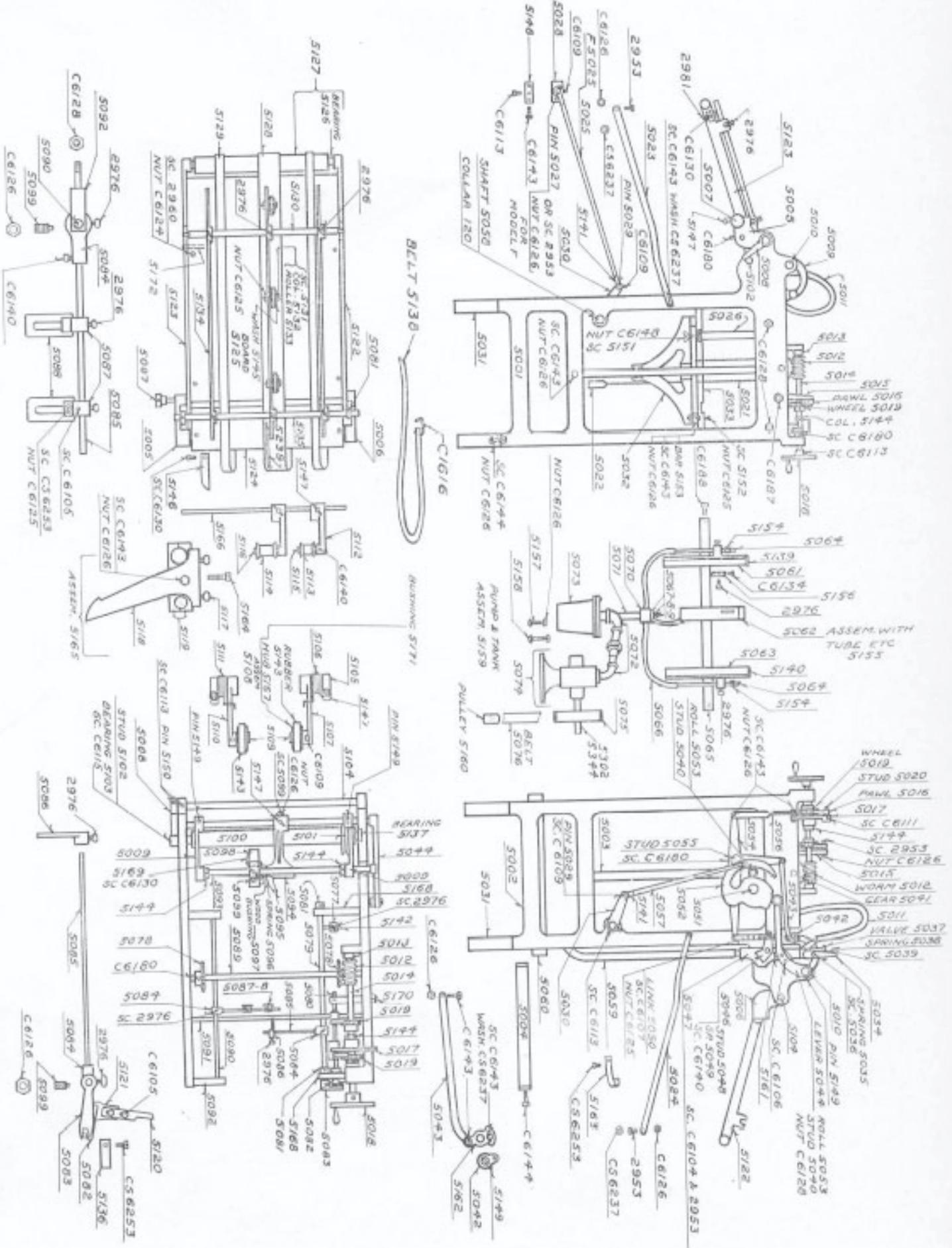


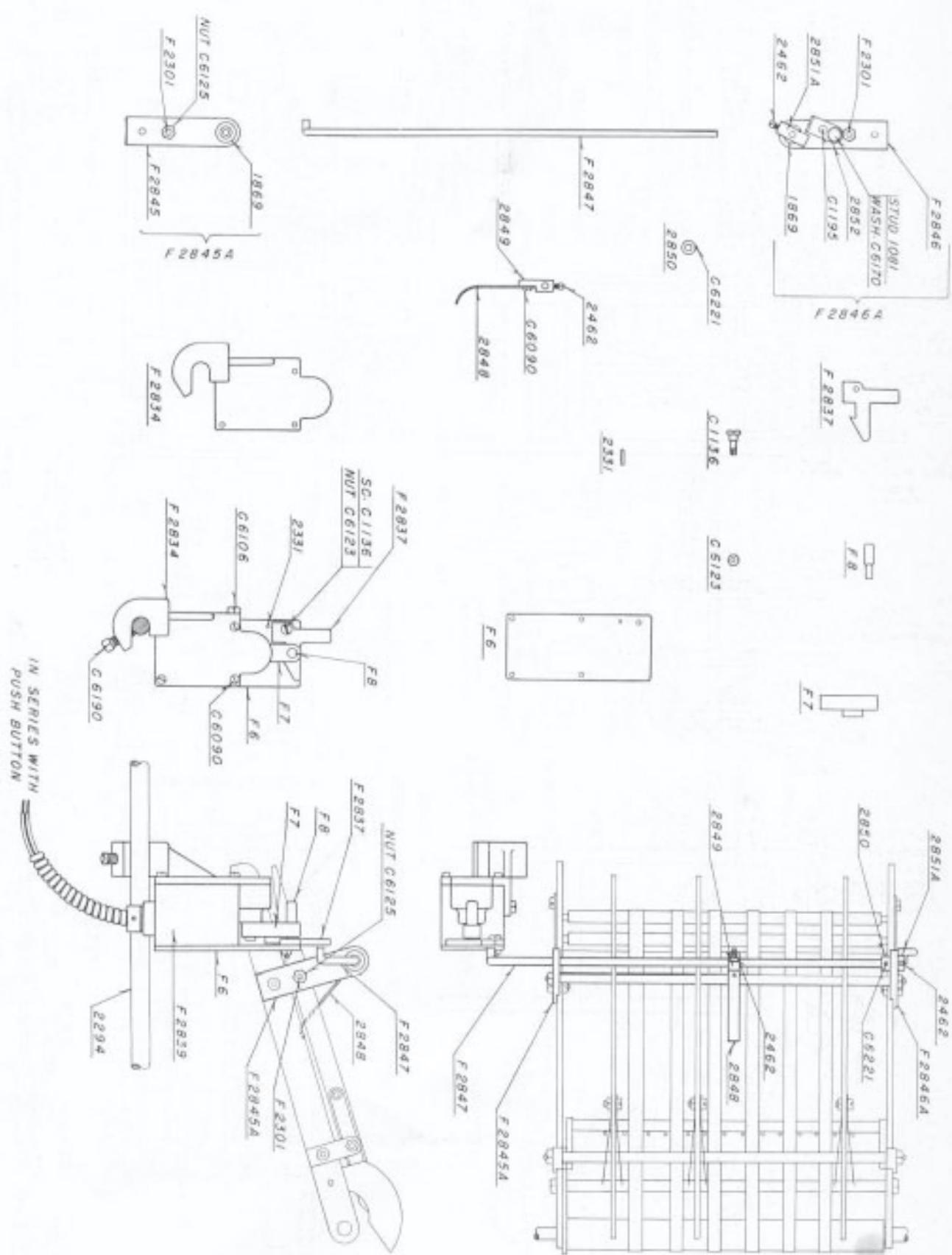




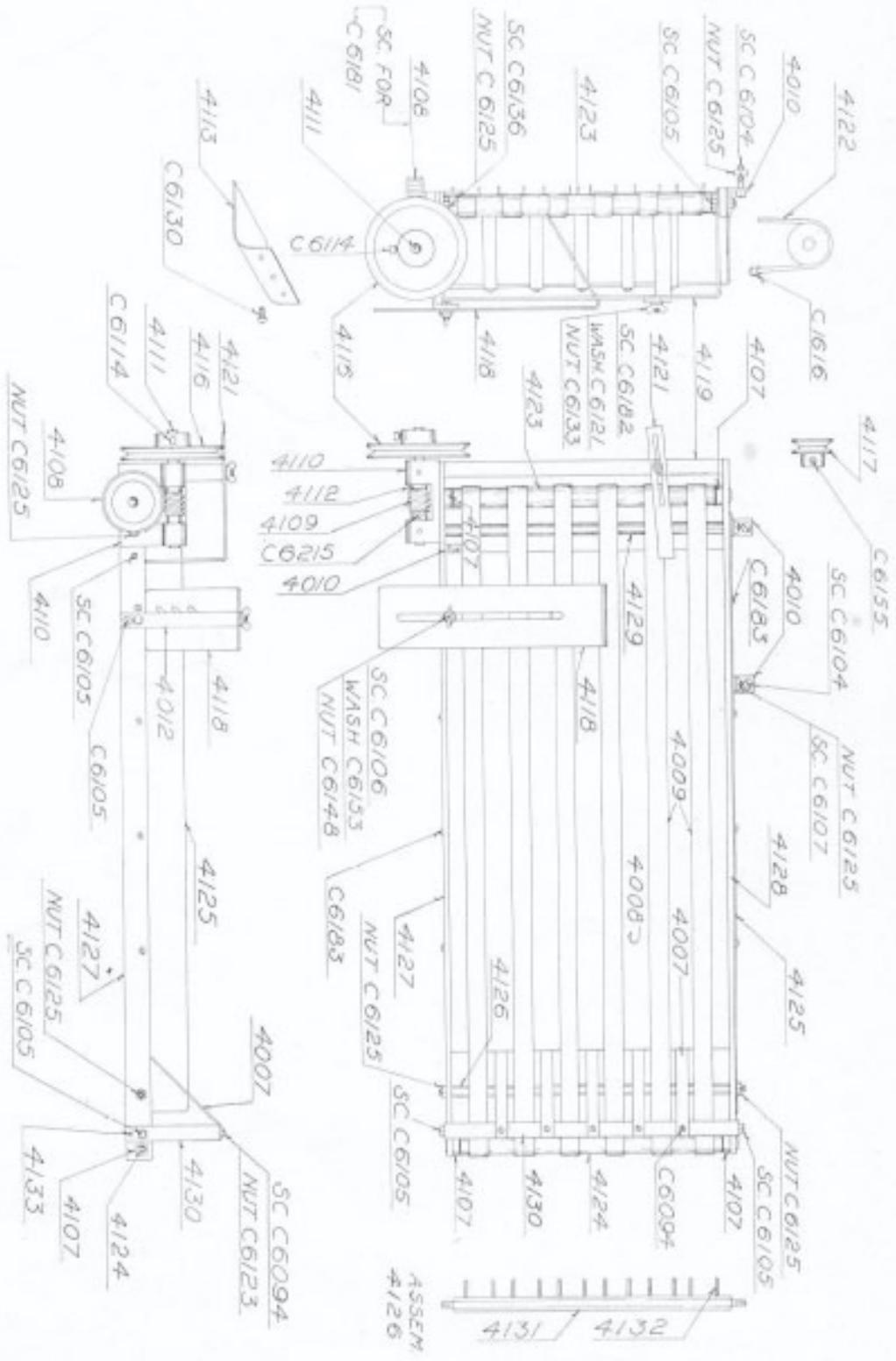
MODEL K FEED — SIDE VIEWS







## AUTOMATIC STOP



EXTENSION DELIVERY

